

TOEROEK ASSOCIATES, INC.

November 15, 2018



Ms. Lisa Messinger
Task Order Contracting Officer Representative
U.S. Environmental Protection Agency, Region 7
11201 Renner Blvd.
Lenexa, Kansas 66219

**Subject: Final Long-Term Stewardship Assessment and Site Visit Report
Buzzi Unicem USA, Independence, Kansas, EPA ID #KSD980739999
Contract No. EP-W-13-002, Task Order 035, Technical Directive No. 9**

Dear Ms. Messinger:

The Toeroek Associates, Inc. team (Toeroek team) is pleased to present the Final Long-Term Stewardship (LTS) Assessment and Site Visit Report regarding Buzzi Unicem USA in Independence, Kansas. In accordance with Region 7 Task Order (TO) 035, Technical Directive (TD) No. 9, received September 7, 2018, the Toeroek team has completed the following tasks:

- Conducted a Desktop LTS Assessment of Buzzi Unicem USA
- Performed an On-site LTS Assessment of Buzzi Unicem USA on October 2, 2018
- Prepared a final report of inspection findings, including a summary of site conditions, photographic log of on-site areas assessed, field and desktop review checklists, summary of records reviewed and attachments of records review documentation, and recommendations for correcting any issues or record gaps identified.

The principal finding of this LTS assessment and site visit is that Buzzi Unicem USA appears to meet the requirements in the LTS checklists. The Toeroek team has noted this with a “pass” finding on the checklists except for the following:

Records could not be found online or in documents provided by EPA confirming if reporting requirements are being met by the facility. As such, the Toeroek team’s finding was “further evaluation needed” for the LTS Desktop Review Checklist.

Analytical results for monitoring wells near the Old Cement Kiln Dust (CKD) Landfill were missing for 2012, 2013, 2014, and 2015. In addition, three monitoring well were noted as damaged and needing repairs. As such, the Toeroek team’s finding was “further evaluation needed” for the LTS Wells/Mitigation Equipment Checklist.

EPA may want to research the above items to confirm that reporting requirements are being met by the facility and to determine why analytical data might be missing for the Old CKD Landfill wells. If you have any questions or comments regarding this submittal, please contact me at 816-412-1768.

300 Union Blvd., Suite 520
Lakewood, CO 80228
303-420-7735
Fax: 303-420-7658

Ms. Lisa Messinger
November 15, 2018
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Sincerely,

A handwritten signature in black ink, appearing to read "Danielle K. Gibson", with a long horizontal flourish extending to the right.

Danielle Gibson
Technical Directive Manager

Enclosures

cc: Kristy Throckmorton, Contracting Officer's Representative (cover letter only)
Brian Mitchell, EPA Project Manager
Paul Kieler, REPA Program Manager
Kathy Homer, Tetra Tech REPA Region 7 Project Manager
File

FINAL
LONG-TERM STEWARDSHIP ASSESSMENT AND SITE VISIT REPORT
BUZZI UNICEM USA
INDEPENDENCE, KANSAS
EPA ID #KSD980739999

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 7

Task Order No.	:	035
Technical Directive	:	9
EPA Region	:	7
Date Prepared	:	November 15, 2018
Contract No.	:	EP-W-13-002
Prepared by	:	Toeroek Associates, Inc.
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1.0 INTRODUCTION

The Toeroek Associates, Inc. team (Toeroek team) received Task Order No. 035 from the U.S. Environmental Protection Agency (EPA), under Contract No. EP-W-13-002, to provide assistance to Resource Conservation and Recovery Act (RCRA) state and federal program staff in EPA Region 7. Specifically, under Technical Directive No. 9 for this task order, EPA Region 7 requested that the Toeroek team, which includes the Toeroek team subcontractor Tetra Tech, Inc. (Tetra Tech), conduct a Long-Term Stewardship (LTS) Assessment and Site Visit at Buzzi Unicem USA in Independence, Kansas. The Toeroek team has completed the following tasks:

- Conducted a Desktop LTS Assessment of Buzzi Unicem USA
- Performed an On-site LTS Assessment on October 2, 2018, of Buzzi Unicem USA, including verification of existing monitoring well locations
- Prepared a draft and final report of inspection findings, including a summary of site conditions, photographic log of on-site areas assessed, field and desktop review checklists, summary of records reviewed and attachments of records review documentation, and recommendations for correcting any issues or record gaps identified.

2.0 SUMMARY OF ASSESSMENT

The assessment consisted primarily of two components, a Desktop LTS Assessment and an On-site LTS Assessment. The Desktop LTS Assessment involved research and assessment of available internal and external records (via online database or office records), in accordance with the Region 7 RCRA LTS Desktop Review Checklist. The LTS Desktop Review Checklist is in Appendix A. A summary of the Desktop LTS Assessment is in Section 3.0. The On-site LTS Assessment included a site visit to assess compliance of land use conditions as directed in the RCRA Hazardous and Solid Waste Amendments (HSWA) Permit. In addition, the On-site LTS Assessment included verification of existing monitoring well locations. The On-site LTS Assessment checklists include:

- LTS Site Visit General
- LTS Institutional Control
- Protective Barrier/Cap
- LTS Wells/Mitigation Equipment.

Completed checklists from the site visit are in Appendix B. A summary of the On-site LTS Assessment is in Section 4.0.

2.1 PURPOSE/SCOPE

Primary purposes of the Desktop LTS Assessment were to (1) determine whether existing legal descriptions or other geographic descriptions of environmental control boundaries are accurate or need modification, and (2) ensure that property use remains consistent with institutional controls. This included searching available online resources and reports provided by EPA, but not limited to: RCRA Comprehensive Corrective Action (CA) records, county recorder and title chain records, water well records, and zoning records. The primary purpose of the On-site LTS Assessment was to conduct a site visit to assess land use conditions as directed in the RCRA HSWA Permit. The Toeroek team also completed cursory reviews of the following at the facility:

- Overall examination of the facility, including available aerial photographs
- Monitoring wells at the facility to verify locations
- Environmental controls previously imposed
- Engineered covers currently in place at the facility.

No formal interview of the facility contact occurred, although a facility representative was available during the site visit to answer questions. To document site visit activities and findings, the Toeroek team completed the checklists cited above, including completion of the bottom of each checklist where a “pass/further evaluation needed/corrective measures needed” selection was present. In addition, the Toeroek team took photos of the facility, included in Appendix C.

2.2 FACILITY BACKGROUND

The Buzzi Unicem USA facility is at 1765 Limestone Lane in Independence, Montgomery County, Kansas. The entire facility encompasses approximately 1,100 acres (EPA 2016) (see Figure 1). The portion of the facility with engineering and institutional controls under the RCRA HSWA Permit includes solid waste management units (SWMU 10 and 11), approximately 107.7 acres (EPA 2016) (see Figure 2). The property is currently leased to a company which is involved in the production of fly ash.

SWMU 11 includes two cement kiln dust (CKD) landfills identified as the Old CKD Landfill and New CKD Landfill (EPA 2016). SWMU 10 includes a single Industrial Landfill. Operations of the original cement plant at the site date back to 1905. Operations at the plant included quarrying, raw material preparation, cement production, and cement storage/shipping facilities (Schreiber & Yonley Associates 2015). At the time Heartland Cement Company (d/b/a Buzzi Unicem USA) used hazardous waste-derived fuels for burning during manufacturing processes which required the facility to obtain a Part B RCRA permit for storage of these fuels (EPA 2016). This permit required a RCRA Facility Investigation (RFI) to ensure appropriate corrective actions are taken in the instance of a release from a SWMU or when a release is suspected (EPA 2016). Several RFI and follow up activities have occurred at SWMU 11 dating back to 1991. Results of these activities found metals leaching from the Old CKD landfill into groundwater; however, these chemicals of concern appeared to be contained within the property boundary and posed little health risk to potential receptors downgradient of the site (EPA 2016). Capping of the Old and New CKD Landfills at SWMU 11 occurred in 2012 with closure certification received in 2013 (EPA 2016). On July 18, 2013 EPA issued a new RCRA HSWA Permit for the facility.

As noted in Sections 1.0 and 2.0, a primary focus of this LTS Assessment and Site Visit was to assess whether land use conditions continue to be consistent with the RCRA HSWA Permit.

3.0 LTS DESKTOP ASSESSMENT

The Toeroek team completed a desktop survey using the LTS Desktop Review Checklist included as Appendix A. The Toeroek team has annotated the checklist to provide information on sources researched to complete the checklist. In addition, the Toeroek team has included supporting documentation for the checklist as attachments to Appendix A. The RCRA HSWA Permit specifies engineering controls for SWMU 10 and 11 as stated below:

- The Permittee shall make a class 1 permit modification within 10 days of notice from EPA to include any other SWMUs or Areas of Concern (AOC) which EPA may designate in the permit condition.
- The Permittee is required to design, install, and maintain a cover with low permeability over the solid waste and materials disposed of in the SWMUs.
- The Permittee is required to design, install, and maintain a layer of soil over the low permeability cover to sufficiently protect the cover from infiltration and frost and to support and maintain vegetation to hinder erosion of the soil and underlying cover.
- The Permittee is required to plant and maintain vegetation of a type that will prevent erosion of soil and the underlying cover and will not damage the underlying cover.
- The Permittee is required to design, install, and maintain features and appurtenances as necessary to control and prevent damage to the cover from precipitation and flooding.
- The Permittee is required to design, install, and maintain features and appurtenances necessary to prevent trespassers, livestock, or any other activity that may damage the cover.

The RCRA HSWA Permit also specifies institutional controls as follows:

- The Permittee shall not allow others to construct or engage in any activity that could damage or interfere with the low permeability cover, soil layer, and other associated features and appurtenances.
- The Permittee shall not use, construct, or install any water extraction well without prior written approval of EPA and the Kansas Department of Health and Environment (KDHE).
- The Permittee shall not use any portion of the facility property for any use other than industrial or commercial use. Child care facilities are prohibited.
- The Permittee shall not excavate or remove any surface or subsurface soil or sediments, in conformance with the Corrective Measures Implementation Work Plan approved by EPA and KDHE. The Permittee shall, as necessary, maintain and update a Corrective Measures Implementation Plan for (a) testing and proper management of any contaminated environmental media that may be encountered at the facility, and (b) ensure that construction workers, maintenance workers, and facility employees will be required to have training appropriate for their level of exposure prior to engaging in any such activities that may involve contact with soil and/or groundwater at the facility.

- Exceptions to the above activity and use limitations include minor excavations needed to install, maintain, or repair utility poles, fence posts, sidewalks, paving, and other comparable activities, as well as minor excavations necessary to maintain or repair existing underground utilities and minor excavations in connection with landscaping activities.
- The Permittee shall not construct, repair, or alter the facility in any way that would damage or interfere with the corrective measures without approval from EPA and in accordance with an amended Corrective Measure Implementation Plan.
- The Permittee may submit a request to modify the permit, with appropriate technical and other supporting information, that one or more of the above activity and use limitations should be modified or terminated.

The Permittee is also required to monitor the effectiveness and performance of the corrective measures and determine if there are any failures of the corrective measures. These must be presented to EPA in an annual report. In addition, quarterly progress reports are required by the RCRA HSWA Permit. Records could not be found online or in documents provided by EPA confirming if reporting requirements are being met by the facility.

No discrepancies were identified between the RCRAInfo Comprehensive CA report and the RCRA HSWA Permit. Review of aerial photographs did not indicate any recent changes in land use.

An online well search of the Buzzi Unicem USA property and the surrounding area was completed. Two wells were registered within the boundaries of SWMUs 10 and 11. NLGW-4 was installed on 12/11/2015 and OLGW-12 was installed on 2/24/2009, both owned by Heartland Cement Company. No other new wells were identified within the boundaries of SWMUs 10 and 11.

Based on the LTS Desktop Assessment, a finding of “further evaluation needed” was noted on the checklist as it could not be confirmed if reporting requirements are being met.

4.0 ON-SITE LTS ASSESSMENT

Ms. Danielle Gibson, Tetra Tech, conducted the On-site LTS Assessment during a site visit at Buzzi Unicem USA in Independence, Kansas, on October 2, 2018. The following narrative documents activities during the site visit. Site visit checklists are in Appendix B. Appendix C includes photographs taken during the site visit. The general purpose of the site visit was to assess whether land use complies with the RCRA HSWA Permit. The site included (1) meeting with facility representative, Wally Snodgrass of Buzzi Unicem USA; and (2) observations of the facility (including landfill caps and existing monitoring wells). Observations were recorded on inspection checklists included in Appendix B and summarized below.

Visual observation of land use at Buzzi Unicem USA indicated that the facility is currently used for industrial/commercial purposes, consistent with the RCRA HSWA Permit. The property is currently leased to a company involved in the production of fly ash.

Buzzi Unicem USA includes caps over three landfills at SWMU 10 (Industrial Landfill) and SWMU 11 (Old and New CKD Landfills). Per the RCRA HSWA Permit, covers over these landfills were to include a low permeability cover over the solid waste and materials disposed of in the SWMUs, followed by a layer of soil. Vegetation was then to be used to prevent erosion of the soil while not damaging the underlying low permeability cover. All covers appeared well maintained and in good condition. One small area of erosion was noted at the Industrial Landfill; however, no other areas of erosion or damage were noted during the site visit. Photographs of the facility are in Appendix C.

In addition to the On-site LTS Assessment, EPA requested that the Toeroek team verify locations of existing monitoring wells on the site. In total, 22 wells were identified during the site visit. One additional well, OLGW-2, was noted by Mr. Snodgrass as abandoned in 2011 or 2012. Global Positioning System (GPS) coordinates of all existing wells were recorded during the site visit, and are included in Appendix B. In general, wells appeared well maintained and free of debris; however, damage was noted at three wells. At monitoring well OLGW-4, soil was eroding around the well into the creek below. Mr. Snodgrass indicated that they will be hiring a contractor to bring in rip rap to stabilize the creek bank. At monitoring well OLGW-6, the stickup was knocked over and appeared to have been that way for some time, as the location where the well originally broke off could not be found. In addition, at monitoring well ILGW-3 the well pad was damaged.

During a review of on-site facility files, it was noted that analytical data is missing for all monitoring wells near the Old CKD Landfill from 2012, 2013, 2014, and 2015. Also, according to on-site files IDLW-2 was not sampled in August and October 2013 due to mud covering the well from heavy rains.

Based on the Toeroek team's site visit, Buzzi Unicem USA appears to meet the requirements in the following checklists, and the Toeroek team has noted this with a "pass" finding:

- LTS Site Visit General
- LTS Institutional Control
- Protective Barrier/Cap.

A finding of "further evaluation needed" was noted for the following checklist because analytical data appeared to be missing from on-site facility files and repairs of monitoring wells may be needed:

LTS Wells/Mitigation Equipment Checklist.

5.0 FINDINGS

The LTS Assessment consisted primarily of two components: (1) a Desktop LTS Assessment, and (2) an On-site LTS Assessment. Based on the Toeroek team's assessment, Buzzi Unicem USA appears to meet the requirements in the LTS checklists, and the Toeroek team has noted this with a "pass" finding on the checklists except for the following:

Records could not be found online or in documents provided by EPA confirming if reporting requirements are being met by the facility. As such, the Toeroek team's finding was "further evaluation needed" for the LTS Desktop Review Checklist.

Analytical results for monitoring wells near the Old Cement Kiln Dust (CKD) Landfill were missing for 2012, 2013, 2014, and 2015. In addition, three monitoring well were noted as damaged and need repairs. As such, the Toeroek team's finding was "further evaluation needed" for the LTS Wells/Mitigation Equipment Checklist.

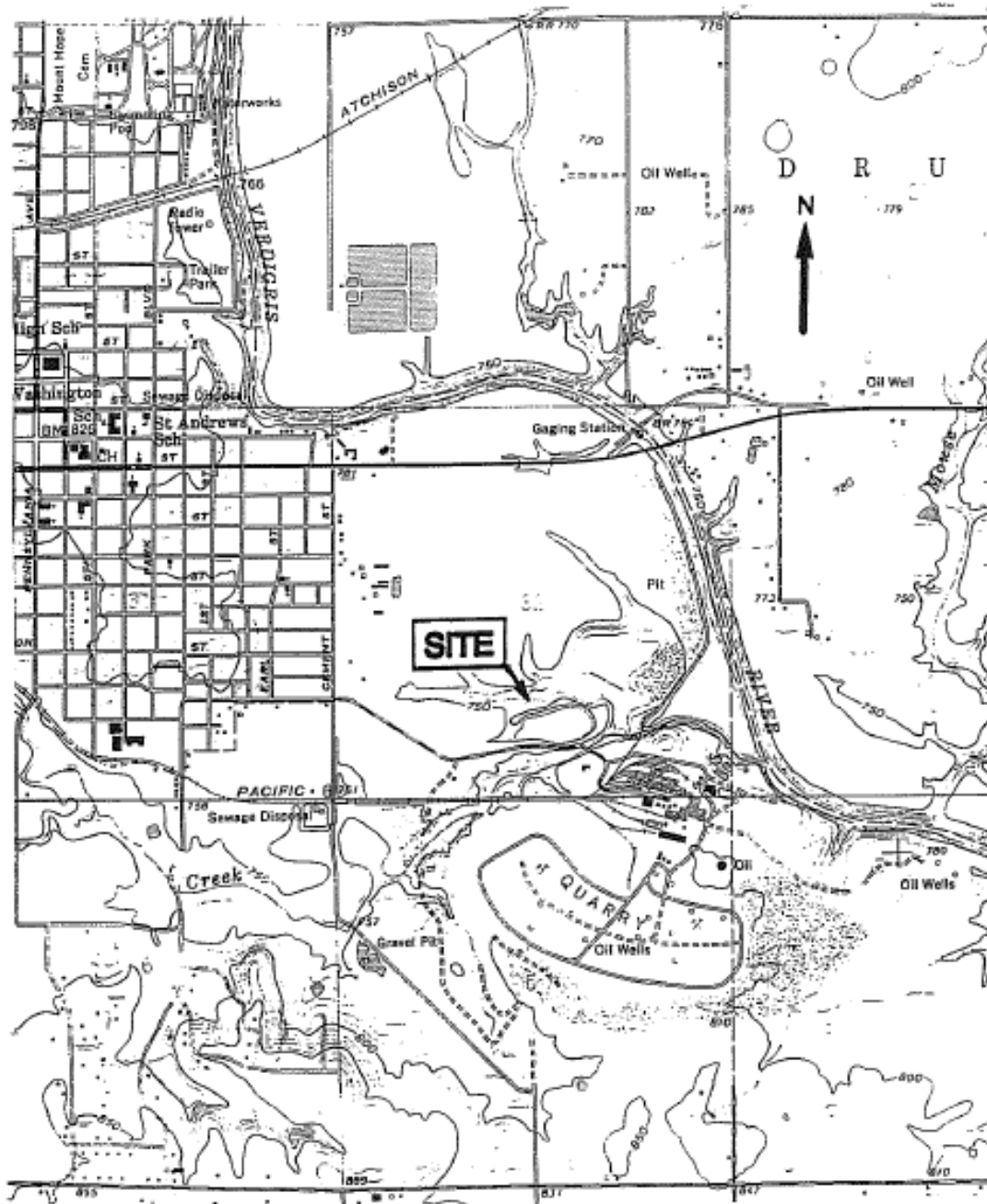
6.0 REFERENCES

Schreiber & Yonley Associates. 2015. Landfill Cap Maintenance Plan, SWMU 11 (Kiln Dust Landfills A & B), Heartland Cement Company dba Buzzi Unicem USA, Independence, KS. November.

U.S. Environmental Protection Agency (EPA). 2016. Groundwater Monitoring Plan, SWMU 11 (Kiln Dust Landfills A & B), Heartland Cement Company dba Buzzi Unicem USA, Independence, Kansas. March.

FIGURES





Source: Independence, Kansas; 7.5 Minute Topographic Map

SITE LOCATION MAP				FIGURE 1
HEARTLAND CEMENT COMPANY				SCALE:
INDEPENDENCE, KANSAS				
CHECKED BY:	DRAWN BY:	DATE DRAWN:	DRAWING BY:	REVISION:
	ARS	10/7/99	SITLOC	

**SCHREIBER
& YONLEY
ASSOCIATES**
ENVIRONMENTAL ENGINEERS

Figure 1: Site Location Map



FIGURE 2
SWMU 11 LOCATION MAP
HEARTLAND CEMENT COMPANY
dba BUZZI UNICEM, USA
INDEPENDENCE, KANSAS



APPENDIX A
LTS DESKTOP REVIEW CHECKLIST



EPA REGION 7 – LTS DESKTOP REVIEW CHECKLIST

Updated September 23, 2016

FACILITY DETAILS	
EPA ID:	KSD980739999
Facility Name:	Buzzi Unicem USA
Facility Address:	1765 Limestone Lane, Independence, KS 67301
Report Finalized:	Signature: <i>Danielle R. Gibson</i> Date: November 12, 2018

PART I. PRE-ASSESSMENT CHECKLIST			
Date Pre-Assessment completed:	October 1, 2018		
Pre-Assessment performed by (Name/Organization):	Danielle Gibson / Tetra Tech		
A. Background Document Review			
Prior to the site visit, review the following documents. Indicate status or if achieved.			
1. Current Human Exposures Under Control (EI CA 725)?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Resource Conservation and Recovery Act Information (RCRAInfo) Comprehensive Corrective Action Report indicates that current human exposures are under control as of 06/17/2004.
2. Migration of Contaminated Groundwater Under Control (EI CA 750)?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): RCRAInfo Comprehensive Corrective Action Report indicates that migration of contaminated groundwater is under control as of 10/05/2010.
3. Final Remedy Decision Achieved (CA 400)?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): RCRAInfo Comprehensive Corrective Action Report indicates that a remedy decision was achieved on 07/18/2013.
4. Remedy Construction Complete (CA 550)?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): RCRAInfo Comprehensive Corrective Action Report indicates that remedy construction was completed on 09/23/2015.
5. Does the site have an active treatment or containment system in operation, or should be in operation as part of an EC?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): The site currently includes three landfill covers at Solid Waste Management Units (SWMU) 10 and 11.
6. Does the site have a long-term monitoring program in place? (ex. CT DEEP Long-Term Stewardship Permit)	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Long-term maintenance, monitoring, and reporting are required for the facility. Section V of the RCRA Hazardous and Solid Waste Amendments (HSWA) Permit identifies the required reporting. This includes annual Corrective Measures Implementation reporting to monitor the effectiveness and performance of the corrective measures and quarterly progress reports. In addition, the facility is subject to five-year reviews.
7. Is the Site located within a potential EPA-defined Environmental Justice Area? (see EPA EJ Screening Tool)	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): According to EPA's Environmental Justice Screening and Mapping Tool (Version 2018), the site is within an environmental justice area. See Attachment A-1.

8. RCRAInfo Review: Are the institutional/engineering controls (existing and terminated), post closure care, orders or permits properly documented in RCRAInfo including the accurate and appropriate effective dates? Are the notes substantial and detailed enough to track down the origin or mechanism of such activities?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Based on available information, all items appear to be properly documented.
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9. Other Pre-Assessment documents reviewed: Comment:
Groundwater Monitoring Plan, SWMU 11 (Kiln Dust Landfills A & B) (dated September 2013, last revised March 2016) Landfill Cap Maintenance Plan, SWMU 11 (Kiln Dust Landfills A & B) (dated November 2015) Post Closure Plan, Industrial Landfill Permit #516 (dated June 2011, revised November 2015) RCRA HSWA Permit (dated July 2013)

B. Engineered and Institutional Controls								
List each EC/IC identified during the file review and indicate whether the listed item is an EC/IC. These should be inspected during the site visit. Look for documents such as deeds or plans with site boundaries. Deed or engineering plans may identify EC/IC details and requirements.	Is the listed item an EC/IC?		Map of EC/IC boundary available?		Copy of IC recorded on deed or EC engineering plan available?		Reference where information was found:	
	EC: / IC:		Yes: / No:		Yes: / No:			
CA772EP Institutional Controls Established – Enforcement and Permit Tools	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	RCRAInfo, RCRA HSWA Permit (see Attachment A-2)	
CA770NG Engineering Controls Established – Non-groundwater Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	RCRAInfo, RCRA HSWA Permit (see Attachment A-2)	
CA770GW Engineering Controls Established – Groundwater Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	RCRAInfo, RCRA HSWA Permit (see Attachment A-2)	

Click here to enter text.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Click here to enter text.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Click here to enter text.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

C. State/Municipal Regulatory Notification and Information	
<i>Indicate whether a State or Municipal regulatory agency was notified about the upcoming assessment, and describe any information provided by that agency related to the assessment.</i>	
Agency: Not applicable (NA)	Contact: NA
Information Obtained: NA	
Agency: Click here to enter text.	Contact: Click here to enter text.
Information Obtained: Click here to enter text.	
Agency: Click here to enter text.	Contact: Click here to enter text.
Information Obtained: Click here to enter text.	
Agency: Click here to enter text.	Contact: Click here to enter text.
Information Obtained: Click here to enter text.	
D. Additional Pre-Assessment Comments	
Click here to enter text.	

Acronyms

CA Remedy – Corrective Action Remedy

EC – Engineered Control

EI CA 725 – RCRA Corrective Action Environmental Indicator,
Current Human Exposure Under Control

EI CA 750 – RCRA Corrective Action Environmental Indicator,
Migration of Contaminated Groundwater Under Control

GIS – Geographic Information System

IC – Institutional Control

O&M Plan – Operations and Maintenance Plan

RCRA – Resource Conservation and Recovery Act

LTS – Long-Term Stewardship

PART II. LTS Desktop Review

Date(s) Desktop Review completed: October 1, 2018

Performed by (Name/Organization): Danielle Gibson, Tetra Tech

A. Background Document Review

10. Are the boundaries of the controls provided in the mechanism's legal description accurate and translatable to real world coordinates? Are there any areas that need a more accurate survey description, cover areas initially under ownership which was not a party to the control document, or areas were excluded from the survey area that should have been included?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Based on the survey included in the RCRA HSWA Permit, the boundaries of the control appear accurate. See Attachment A-2.
11. Does the original control document have a legible map that clearly depicts the legal description as included in the document itself?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Click here to enter text.
12. Are there changes in ownership? <ul style="list-style-type: none">• County online records• Chain of title records• Easements changes• Attach print out of online records and contact information of new owners if possible.	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): According to the Montgomery County website, the property is currently owned by Heartland Cement Co. See Attachment A-3.
13. If applicable, is the deed notice/deed restriction available in the department's office?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Not applicable.
14. If applicable, where is the deed notice/deed restriction recorded? <ul style="list-style-type: none">• Confirm current status of recording• List Book #, Page #	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Not applicable. Institutional controls are identified in the RCRA HSWA Permit issued July 18, 2013.
15. Has the zoning changed? <ul style="list-style-type: none">• City/County online zoning records• Inquiry to City/County offices	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): According to the Montgomery County website, the site is currently zoned for commercial and industrial use. See Attachment A-3.
16. What is the current land use? <ul style="list-style-type: none">• List operating businesses if applicable.	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): The property is currently leased to a company involved in the production of fly ash.

<p>17. If the control document references county parcel or platted information such as Block or Lot descriptions as part of its legal description, have the parcels/lots/blocks been re-platted since the effective date of the document?</p> <ul style="list-style-type: none"> • Include this documentation as well as a depiction of the parcels/lots/block as defined during the effective date of the document. 	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown. No online records could be found regarding if the site had been re-platted.
<p>18. Are there any noticeable or discernable changes in land use, structure layout, surface grading, surface waters, excavations, breaches in engineering controls, etc.?</p> <ul style="list-style-type: none"> • Current and historical aerial photographs (Google Earth, Bing, files from State GIS clearinghouses) • Attach print out 	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Aerial photographs reviewed do not show obvious changes in land use; however aerial photographs did not provide sufficient detail. It appears in 2006 that the Industrial Landfill (SWMU 10) and Cement Kiln Dust (CKD) Landfills (SWMU 11) were still active. In 2008, the New CKD Landfill (SWMU 11) appears to have been covered. By, 2012, the Old CKD Landfills looks covered and by 2015, the Industrial Landfill (SWMU 10) appears to be covered. See Attachment A-4.
<p>19. Are there any newly permitted wells within boundaries of the restricted area?</p> <ul style="list-style-type: none"> • Online state database and mapping systems • County/Local Ordinance changes and permits • Note the year constructed, location, owner, well ID, attached well construction or log information 	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Based on a review of the Kansas Geological Survey Interactive Map, two wells are registered within SWMUs 10 and 11. NLGW-4 was installed on 12/11/2015 and OLGW-12 was installed on 2/24/2009. Both are owned by Heartland Cement Co. See Attachment A-5.
<p>20. Are the property owners/agency in compliance with reporting requirements stipulated in the control document? Have deficiencies noted based on a review of reports been sufficiently addresses?</p> <ul style="list-style-type: none"> • EPA/State records 	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Reporting requirements are included in Section V of the RCRA HSWA Permit. These include annual Corrective Measures Implementation reports and quarterly progress reports. No records were provided by EPA or were found online documenting if these reporting requirements are being met.

21. Other LTS Desktop documents reviewed:

Comment:

Kansas Geological Survey Interactive Map (August 2018)
Montgomery County Parcel Search

PART III. OVERALL ASSESSMENT

☐ Pass

☒ Further Evaluation Needed

☐ Corrective Measures Needed

ATTACHMENT A-1
ENVIRONMENTAL JUSTICE SCREENING

EJSCREEN Census 2010 Summary Report



Location: User-specified point center at 37.213097, -95.683082
 Ring (buffer): 1-mile radius
 Description:

Summary	Census 2010
Population	932
Population Density (per sq. mile)	278
Minority Population	204
% Minority	22%
Households	406
Housing Units	461
Land Area (sq. miles)	3.35
% Land Area	100%
Water Area (sq. miles)	0.01
% Water Area	0%

Population by Race	Number	Percent
Total	932	-----
Population Reporting One Race	885	95%
White	754	81%
Black	78	8%
American Indian	19	2%
Asian	3	0%
Pacific Islander	0	0%
Some Other Race	31	3%
Population Reporting Two or More Races	47	5%
Total Hispanic Population	70	7%
Total Non-Hispanic Population	862	93%
White Alone	728	78%
Black Alone	75	8%
American Indian Alone	16	2%
Non-Hispanic Asian Alone	3	0%
Pacific Islander Alone	0	0%
Other Race Alone	4	0%
Two or More Races Alone	37	4%

Population by Sex	Number	Percent
Male	469	50%
Female	463	50%

Population by Age	Number	Percent
Age 0-4	64	7%
Age 0-17	233	25%
Age 18+	699	75%
Age 65+	134	14%

Households by Tenure	Number	Percent
Total	406	
Owner Occupied	254	63%
Renter Occupied	152	37%

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.

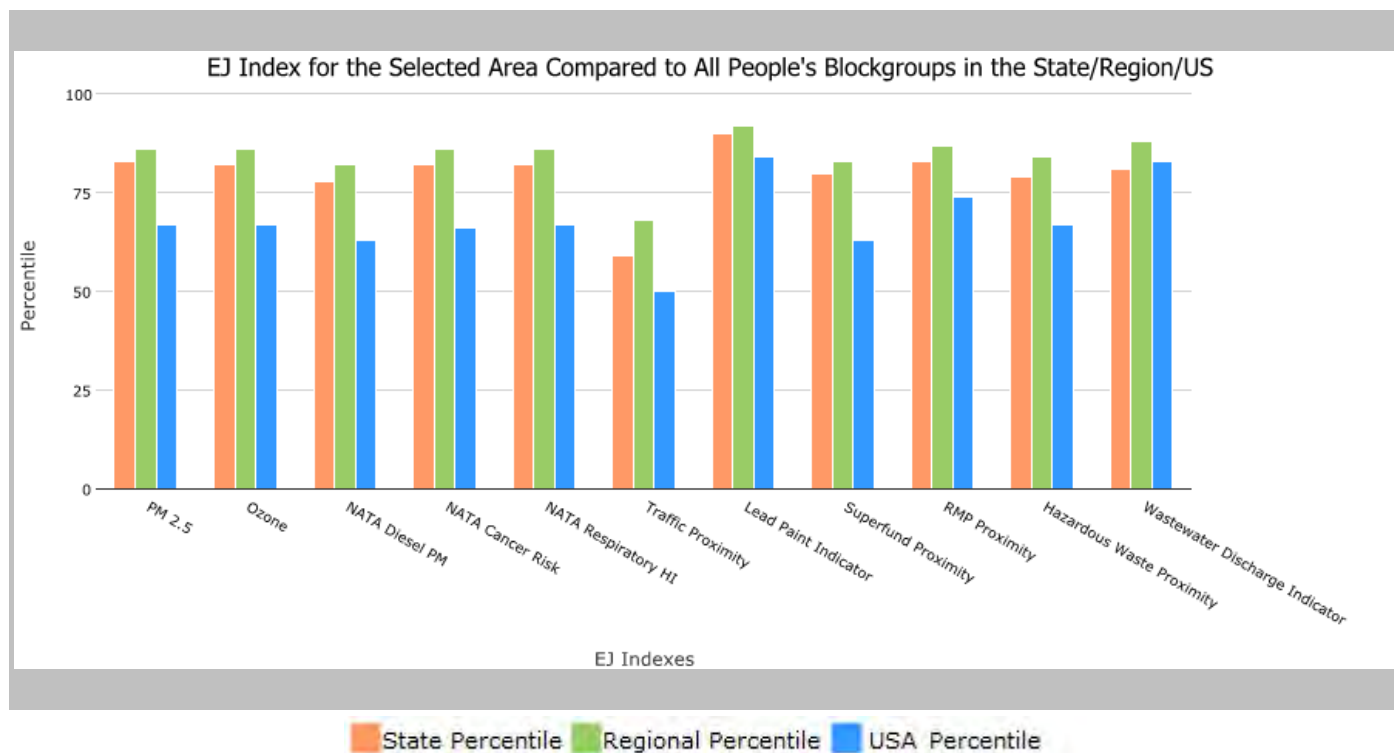
Source: U.S. Census Bureau, Census 2010 Summary File 1.

1 mile Ring Centered at 37.213097,-95.683082, KANSAS, EPA Region 7

Approximate Population: 917

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	83	86	67
EJ Index for Ozone	82	86	67
EJ Index for NATA* Diesel PM	78	82	63
EJ Index for NATA* Air Toxics Cancer Risk	82	86	66
EJ Index for NATA* Respiratory Hazard Index	82	86	67
EJ Index for Traffic Proximity and Volume	59	68	50
EJ Index for Lead Paint Indicator	90	92	84
EJ Index for Superfund Proximity	80	83	63
EJ Index for RMP Proximity	83	87	74
EJ Index for Hazardous Waste Proximity	79	84	67
EJ Index for Wastewater Discharge Indicator	81	88	83



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

1 mile Ring Centered at 37.213097,-95.683082, KANSAS, EPA Region 7

Approximate Population: 917

Input Area (sq. miles): 3.14



September 25, 2018

✚ Digitized Point

1:9,028
0 0.075 0.15 0.3 mi
0 0.1 0.2 0.4 km
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Sites reporting to EPA

Superfund NPL

0

Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)

0

EJSCREEN Report (Version 2018)



1 mile Ring Centered at 37.213097,-95.683082, KANSAS, EPA Region 7

Approximate Population: 917

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	9.71	9.05	99	9.45	71	9.53	51
Ozone (ppb)	43.9	45	42	42.8	71	42.5	65
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	0.323	0.64	29	0.78	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	41	39	62	38	60-70th	40	50-60th
NATA* Respiratory Hazard Index	1.8	1.6	72	1.5	70-80th	1.8	50-60th
Traffic Proximity and Volume (daily traffic count/distance to road)	21	140	45	490	32	600	27
Lead Paint Indicator (% Pre-1960 Housing)	0.6	0.36	77	0.35	79	0.29	82
Superfund Proximity (site count/km distance)	0.016	0.07	26	0.091	24	0.12	19
RMP Proximity (facility count/km distance)	0.57	0.96	48	0.92	54	0.72	63
Hazardous Waste Proximity (facility count/km distance)	0.3	0.9	46	0.82	52	4.3	44
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.00024	1.2	36	2.4	52	30	60
Demographic Indicators							
Demographic Index	50%	27%	86	26%	89	36%	73
Minority Population	29%	23%	72	19%	79	38%	49
Low Income Population	71%	32%	95	32%	96	34%	94
Linguistically Isolated Population	2%	2%	73	2%	80	4%	58
Population With Less Than High School Education	15%	10%	78	10%	77	13%	65
Population Under 5 years of age	11%	7%	85	6%	87	6%	88
Population over 64 years of age	12%	14%	43	15%	38	14%	45

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

ATTACHMENT A-2
RCRA HSWA PERMIT

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT
EPA AUTHORIZATION UNDER THE
HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984**

PERMITTEE: Heartland Cement Company d.b.a. Buzzi Unicem USA

RCRA IDENTIFICATION NUMBER: KSD980739999

Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as further amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. 6901 et seq. (RCRA), and regulations promulgated thereunder by the United States Environmental Protection Agency (EPA) (codified and to be codified in Title 40 of the Code of Federal Regulations (CFR)), a Permit is issued by EPA to Heartland Cement Company d.b.a. Buzzi Unicem USA (hereafter called the Permittee), to perform activities required by HSWA at their facility located at 1765 Limestone Lane, Independence, Kansas.

Section 3004(u) of RCRA, 42 U.S.C. 6924(u), and 40 CFR §264.101, require that all Permits issued after November 8, 1984 address corrective action for releases of hazardous waste or hazardous constituents from any solid waste management unit (SWMU), regardless of when waste was placed in the unit or whether the unit is closed. Those sections further require that Permits issued under Section 3005 of RCRA contain a schedule of compliance for corrective action where corrective action cannot be completed prior to Permit issuance. Section 3004(v) authorizes the EPA to require that corrective action be taken by the facility owner or operator beyond the facility boundary when necessary to protect human health and the environment, unless the owner or operator demonstrates that permission to undertake such action, despite the owner/operator's best efforts, was denied. Section 3005(c)(3) of RCRA requires that each Permit issued under Section 3005 of RCRA shall contain terms and conditions as the EPA determines necessary to protect human health and the environment.

The facility formerly operated as a Portland cement manufacturing and distribution facility. In the cement manufacturing operations, hazardous waste was burned in the cement kiln. Attendant operations to hazardous waste combustion included receiving and offloading shipments of hazardous waste and the storing and blending hazardous waste prior to its combustion.

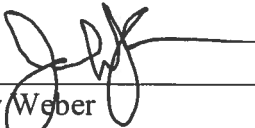
This Permit consists of the provisions (Permit Conditions) contained herein (including this Permit's attachments) and the applicable regulations contained in 40 CFR Parts 260 through 266, 268, 270, and 124, which are incorporated by reference. This Permit is based upon the applicable regulations which are in effect on the date of the issuance of the Permit, in accordance with 40 CFR §270.32(c). The Permittee must comply with all terms and conditions of this Permit.

This Permit is based on the assumption that the information submitted in the Permit Application is accurate and that the facility will be operated as specified in the Permit Application. Any inaccuracies found in the submitted information may be grounds for the termination, revocation and reissuance, or modification of this Permit in accordance with 40 CFR §§270.41, 270.42, and 270.43, and for enforcement action. The Permittee must inform EPA of any deviation from or changes in the information in the Permit Application which would affect the Permittee's ability to comply with the applicable regulations or Permit Conditions.

The Regional Administrator of EPA, Region 7 has delegated authority to perform all actions necessary to issue, deny, modify, or revoke and reissue Permits for owners and operators of hazardous waste treatment, storage, and disposal facilities pursuant to Section 3005 of RCRA to the Director of Region 7 Air and Waste Management Division (hereafter referred to as Director) or the Director's designated representative, by delegation No. R7-8-6; January 1, 1995 and revised on September 16, 2007.

~~This Permit is issued as of the date below. This Permit shall become effective immediately in accordance with~~
40 CFR §124.15 and shall remain in effect for ten (10) years from the date of its issuance unless revoked and
reissued under 40 CFR §270.41, terminated under 40 CFR §270.43, or continued in accordance with 40 CFR
§270.51(a) or (d).

Done at Kansas City, Kansas, this 18th day of Aug, 2013.


Becky Weber

Director

Air and Waste Management Division

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ATTACHMENTS

- Attachment 1 – Facility Location Map
- Attachment 2 – SWMU Location Map
- Attachment 3 – Corrective Measures Decision
- Attachment 4 – Ground Water Monitoring Plan

I. DEFINITIONS

For purposes of this Permit, terms used herein shall have the same meaning as those in 40 CFR Parts 124, 260, 261, 264, 266, 268, and 270, unless this Permit specifically provides otherwise; where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

“Annually” means one time per calendar year such that at least eleven (11) months and no more than thirteen (13) months have elapsed since the last annual event.

“Area of Concern” or “AOC” means any area of the Facility under the control or ownership of the owner or operator where a release to the environment of hazardous waste(s) or hazardous constituents has occurred, is suspected to have occurred, or may occur, regardless of the frequency or duration of the release.

“AWMD” means the Air and Waste Management Division of Region 7 of the EPA, or subsequently renamed division of EPA Region 7 that includes the personnel that conduct oversight of RCRA.

“Daily” means once each calendar day, unless expressly stated to be a working day. “Working day” or “business day” shall mean a day other than a Saturday, Sunday, or a federal holiday. In computing any period of time under this Permit, where the last day would fall on a Saturday, Sunday, or a federal holiday, the period shall run until the close of business of the next working day.

“Data Quality Objectives (DQOs)” means performance and acceptance criteria that clarify study objectives, define the appropriate type of data, and specify tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions. The DQOs shall be prepared consistent with EPA Guidance documents; “Guidance on Systematic Planning Using the Data Quality Objectives Process” EPA QA/G-4, EPA/240/B-06/001, February 2006; “Guidance for Developing Quality Systems for Environmental Programs” EPA QA/G-1, EPA/240/R-008, November 2002; and any subsequent revisions or editions.

“Day” or “Days” means calendar day unless otherwise specified.

“Director” means the Division Director of AWMD, his or her designee, or an authorized representative.

“Engineering Controls” means any mechanism used to contain or stabilize contamination that ensures the effectiveness of a remedial action and acts as a physical barrier between the contamination and contact with humans or the environment.

“EPA” means the United States Environmental Protection Agency.

“Facility” means Heartland Cement Company d.b.a. Buzzi Unicem USA facility located at 1765 Limestone Lane, Independence, Kansas and all contiguous property at this location under the control of the Permittee.

“Hazardous Constituent” means any constituent identified in Appendix VIII of 40 CFR Part 261 or any constituent identified in Appendix IX to 40 CFR Part 264.

~~“Hazardous Waste” means any solid waste as defined at 42 U.S.C. §6903 (27) and 40 CFR §261.2 which also meets any of the criteria of a hazardous waste as listed in 42 U.S.C. §6903 (5) and 40 CFR §261.3.~~

“Institutional Controls” means administrative and/or legal mechanisms that help limit exposure to humans from contamination and/or protect the integrity of the remedy.

“Interim Measure” means those actions taken to immediately control or abate threats or potential threats to human health or the environment from releases or potential releases of hazardous waste or hazardous constituents, which can be initiated before implementation of the final corrective measures for a facility.

“Monthly” means twelve (12) times per year (once per calendar month) such that at least fifteen (15) days and no more than forty-five (45) days have elapsed since the last monthly event.

“Permit” means this Permit issued by EPA to the Permittee under the authority of HSWA.

“Permit Application” means the Permit Application dated March 1, 1999, including the Part A Permit Application dated March 1, 1999, and any subsequent revisions or modifications.

“Quality Assurance Project Plan” means a plan of the same name prepared consistent with the EPA’s document titled “EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5)” and any subsequent revisions or editions.

“Quarterly” means four times per calendar year such that at least two (2) months and no more than four (4) months have elapsed since the last quarterly event.

“RCRA Corrective Action Plan” means the document of the same name dated May 1994 and given the OSWER Directive Number 9902.3-2A and EPA Document Number 520-R-94-004 and any subsequent revisions or editions.

“RCRA Facility Investigation Guidance” means the document of the same name dated May 1989 and given the OSWER Directive Number 9502.00-6D and the EPA Document Number 530/SW-89-031.

“Regional Administrator” means the Regional Administrator of EPA, Region VII, or his or her designee.

“Release” means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment, including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes and/or hazardous constituents.

“Semi-Annually” means two times per calendar year such that at least five (5) months and no more than seven (7) months have elapsed since the last semi-annual event.

“Solid Waste Management Unit” or “SWMU” means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released.

“Stabilization” means actions to control or abate threats to human health and/or the environment from releases ~~at RCRA facilities, and/or to prevent or minimize the further spread of contamination while long-term remedies~~ are pursued.

“Standard Operating Procedure” or “SOP” means a document that establishes or prescribes methods to be followed in the operation of hazardous waste storage, treatment and disposal activities. All SOPs must be signed by a responsible corporate officer and include the certification in 40 CFR §270.11(d)(1) . The responsible corporate officer shall be as defined in 40 CFR §270.11(a).

“Weekly” means fifty-two (52) times per calendar year such that no fewer than five (5) days and no more than ten (10) days have elapsed since the last weekly event.

II. GENERAL CONDITIONS

II.A. FACILITY INFORMATION

II.A.1. Owner

The facility owner is Heartland Cement Company hereinafter referred to as the Permittee.

II.A.2. Operator

The facility operator is Heartland Cement Company hereinafter referred to as the Permittee.

II.A.3. Location

The facility is located in Montgomery County at 1765 Limestone Lane, Independence, Kansas. A facility location map is provided in Permit Attachment 1.

II.A.4. Description

The Permittee formerly operated a Portland cement manufacturing facility at the site. For a period of time, the Permittee received hazardous waste from offsite generators, stored and blended the hazardous waste into a fuel stock and burned the fuel stock in the cement kilns. All facilities used to manage hazardous waste have been closed in accordance with RCRA hazardous waste requirements and the hazardous waste management permit.

II.B. EFFECT OF PERMIT

This Permit consists of the conditions contained herein, including those in any attachments thereto; the Permit Application; and the applicable regulations contained in 40 CFR Parts 124, 260 through 264, 268, and 270. Applicable regulations are those which are in effect on the date of issuance of this Permit and those identified in II.B.1 below. The Permittee remains subject to any regulations governing activities not covered by this Permit, for example, those regulations to which hazardous waste generators are subject.

1. Subject to 40 CFR §270.4, compliance with this Permit during its term constitutes compliance, for purposes of enforcement, with those portions of Subtitle C of RCRA as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) included in this Permit, except for those requirements not included in the Permit which:
 - a. Become effective by statute;
 - b. Are promulgated under 40 CFR Part 268 restricting the placement of hazardous wastes in or on the land;
 - c. Are promulgated under 40 CFR Part 264 regarding leak detection systems for new and replacement surface impoundment, waste pile, and landfill units, and lateral expansions of surface impoundment, waste pile, and landfill units. The leak detection system requirements include double liners, CQA programs, monitoring, action leakage

rates, and response action plans, and will be implemented through the procedures of 40 CFR §270.42 Class 1 Permit modifications; or

- d. Are promulgated under 40 CFR Part 265, Subparts AA, BB, or CC limiting air emissions.
2. The issuance of a Permit does not convey any property rights of any sort, or any exclusive privilege.
3. The issuance of a Permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.
4. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under Sections 3008(a), 3008(h), 3013, or 7003 of RCRA, 42 U.S.C. §§6928(a), 6928(h), 6934, and 6973, Sections 106(a), 104 or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq., commonly known as CERCLA); or any other law providing for protection of public health or the environment.

II.C. PERMIT ACTIONS

II.C.1. Permit Modification, Revocation and Reissuance, and Termination by EPA

If at any time the EPA determines that modification, revocation and reissuance or termination of the Permit is necessary, the EPA may initiate a modification to the Permit, revocation and reissuance of the Permit or termination of the Permit in accordance with 40 CFR §§270.41 and 270.43. The initiation of a modification to the Permit, revocation or reissuance of the Permit, or termination of the Permit does not stay the applicability or enforceability of any Permit Condition.

II.C.2. Modification of the Permit by the Permittee

As set forth at 40 CFR §270.42, the Permittee may request a modification of the Permit at any time. The filing of a request for a Permit modification or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any Permit Condition. Modifications to the Permit do not constitute a reissuance of the Permit.

II.C.3. Permit Modification Correspondence File

The Permittee shall maintain a file that contains all correspondence relating to modifications made pursuant to Permit Conditions II.C.1 and II.C.2. This correspondence file shall be available for review by EPA or its designated representative(s) and the public. Note that the file shall be made available during normal business hours.

- a. The Permittee shall reference the availability of this file in all notices made regarding Permit modifications and include a contact person in order to view the file.

- b. The Permittee shall include in the correspondence file all modification requests, ~~copies of all Permit modification notices sent out, the current Permit modification mailing list, and all correspondence from EPA regarding modification requests.~~

II.C.4. Permit Expiration

II.C.4.a. Permit Duration

As set forth at 40 CFR §270.50, this Permit shall be effective for a fixed term not to exceed ten (10) years. Except as provided in Permit Condition II.C.4.b below, the term of a Permit shall not be extended by modification beyond the maximum term of ten (10) years. The Director may issue a Permit for durations of less than ten (10) years or may grant a Permit modification to allow earlier Permit termination.

II.C.4.b. Continuation of Expiring Permits

This Permit, and all conditions herein, will remain in effect and continue in force under 5 U.S.C. §558(c) until the effective date of a new Permit (see 40 CFR §124.15) if:

- i. The Permittee has submitted a timely, complete application under 40 CFR §270.14 and the applicable sections in 40 CFR §§270.15 through 270.29 and 40 CFR §270.10(c); and
- ii. The Director through no fault of the Permittee, does not issue a new Permit with an effective date under 40 CFR §124.15 on or before the expiration date of the previous Permit.

Permits continued under this Permit Condition remain fully effective and enforceable.

II.C.4.c. Enforcement

If the Permittee is not in compliance with the conditions of the expiring or expired Permit, the Director may choose to do any or all of the following:

- i. Initiate enforcement action based upon the Permit which has been continued;
- ii. Issue a notice of intent to deny the new Permit under 40 CFR §124.6. If the new Permit is denied, the Permittee shall cease the activities authorized by the continued Permit or be subject to enforcement action for operating without a Permit;
- iii. Issue a new Permit under 40 CFR Part 124 with appropriate conditions; or
- iv. Take other actions authorized by RCRA.

II.C.4.d. Continuation of Permit following State Authorization

In the event that the Kansas Department of Health and Environment receives authorization under 40 CFR Part 271 to administer the corrective action program under 40 CFR Part 264.101, and 40 CFR Part 264.100(e) 1 & 2, after the effective date of this Permit and if the Permittee submits a timely and complete application under applicable State law and regulations, the terms and conditions of this Permit shall continue in force during the term of this Permit and beyond the expiration date of this Permit, but only until the effective date of the State's issuance or denial of a State RCRA Permit containing requirements for corrective action.

II.C.5. Permit Renewal

This Permit shall be renewed as specified in 40 CFR §270.30(b) and Permit Condition II.E.2. Review of any application for a Permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations.

II.C.6. Permit Appeal

This Permit may be appealed pursuant to the provisions of 40 CFR §124.19(a), which provides as follows:

- a. Within thirty (30) days after a RCRA final Permit decision has been issued under 40 CFR §124.15, any person who filed comments on that draft Permit or participated in the public hearing may petition the Environmental Appeals Board, in writing, to review any condition of the Permit decision. Any person who failed to file comments or failed to participate in the public hearing on the draft Permit may petition for administrative review only to the extent of the changes from the draft to the final Permit decision. The 30-day period within which a person may request review under this section begins with the service of notice of the Regional Administrator's action unless a later date is specified in that notice. The petition shall include a statement of the reasons supporting that review, including a demonstration that any issues being raised were raised during the public comment period (including any public hearing) to the extent required by these regulations and when appropriate, a showing that the condition in question is based on:
 - i. A finding of fact or conclusion of law which is clearly erroneous, or
 - ii. An exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review.

II.D. SEVERABILITY

The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby as set forth at 40 CFR §124.16.

II.E. DUTIES AND REQUIREMENTS

II.E.1. Duty to Comply

As set forth at 40 CFR §270.30(a), the Permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency Permit. Any Permit noncompliance, other than noncompliance authorized by an emergency Permit, constitutes a violation of RCRA and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; and/or for denial of a Permit renewal application.

II.E.2. Duty to Reapply

The Permittee shall submit a complete Permit Application for a new Permit at least one hundred eighty (180) days prior to the expiration of this Permit, as specified in 40 CFR § 270.30(b). This Permit Application shall include information required to continue the post-closure care, groundwater monitoring, corrective action, investigation, interim measures, and/or corrective measures specified in this Permit, and as required in 40 CFR §§ 270.13, 270.14, and 270.28. If the Permittee has not completed any required activity under the existing Permit and fails to timely submit a Permit Application pursuant to this Permit Condition, Permittee shall be deemed to be in violation of this Permit. If any activities required by this Permit must be continued by the Permittee after the expiration date of this Permit, such activities must be included in the Permit Application.

II.E.3. Permit Expiration

As set forth in 40 CFR §270.51(a), unless revoked or terminated, this Permit shall be effective for a fixed term not to exceed ten (10) years, except that, as long as EPA is the Permit-issuing authority, this Permit and all conditions herein will remain in effect beyond the Permit's expiration date and until the effective date of the new Permit, if the Permittee has submitted a timely, complete application and, through no fault of the Permittee, the EPA has not issued a new Permit.

II.E.4. Need to Halt or Reduce Activity Not a Defense

As set forth at 40 CFR §270.30(c), it shall not be a defense for the Permittee, in an enforcement action, that it would have been necessary to halt or reduce the Permitted activity in order to maintain compliance with the conditions of this Permit.

II.E.5. Duty to Mitigate

As set forth at 40 CFR §270.30(d), in the event of noncompliance with this Permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

II.E.6. Proper Operation and Maintenance

As set forth at 40 CFR §270.30(e), the Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation

and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit.

II.E.7. Duty to Provide Information

As set forth at 40 CFR §270.30(h), within thirty (30) days of a request for information from the Director, or such other time as approved by the Director, the Permittee shall furnish to the Director any relevant information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to the Director, within thirty (30) days of request, copies of records required to be kept by this Permit.

II.E.8. Inspection and Entry

- a. As set forth at 40 CFR §270.30(i), the Permittee shall allow the EPA, or an authorized representative, upon the presentation of credentials and other documents, as may be required by law, to:
 - i. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;
 - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;
 - iii. Inspect, photograph, and/or record (audio and/or visual), at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and
 - iv. Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.
- b. Notwithstanding any provision of this Permit, EPA retains the inspection and access authority which it has under RCRA and other applicable laws.

II.E.9. Monitoring and Records

- a. As set forth at 40 CFR §270.30(j)(1), samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261 or an equivalent method approved by the EPA. Laboratory methods shall be in accordance with Waste Management System; Testing and Monitoring Activities; Final Rule: Methods Innovation Rule and SW-846 Final Update IIIB. [70 FR 34538, June 14, 2005].

b. As set forth at 40 CFR §264.74(b) and 40 CFR §270.(j)(2), the Permittee shall ~~retain records of all monitoring information, including all calibration and maintenance~~ records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this Permit, the certification required by 40 CFR §264.73(b)(9), and records of all data used to complete the application for this Permit through the term of the Permit or for a period of at least three (3) years from the date of the sample, measurement, report, record, certification, or application; whichever is longer. These periods may be extended by request of the EPA at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility. The Permittee shall maintain records from all ground water monitoring wells and associated ground water surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.

c. As set forth at 40 CFR §270.30(j)(2) and (3), records of monitoring information shall specify:

- i. The dates, exact place, and times of sampling or measurements;
- ii. The individuals who performed the sampling or measurements;
- iii. The dates analyses were performed;
- iv. The individuals who performed the analyses;
- v. The analytical techniques or methods used; and
- vi. The results of such analyses.

d. The Permittee shall ensure its analytical data meet the Data Quality Objectives (DQOs) in the Quality Assurance Project Plan (QAPP)

II.E.10. Reporting Planned Changes

As set forth at 40 CFR §270.30(l)(1), the Permittee shall give thirty (30) days advance notice to the EPA of any planned physical alterations or additions which may affect any Hazardous Waste Management Units (HWMUs), Solid Waste Management Units (SWMUs), Areas of Concern (AOCs), contaminated media or debris, or existing institutional or engineering controls

II.E.11. Reporting Anticipated Noncompliance

As set forth at 40 CFR §270.30(l)(2), the Permittee shall give at least thirty (30) days advance notice to the EPA prior to any planned changes in the Permitted facility or other activity which may result in noncompliance with Permit requirements. Examples of such changes or activities include, but are not limited to, shutdown, construction or modification of new or existing units for the treatment, storage, or disposal of hazardous waste.

II.E.12. Monitoring Reports

As set forth at 40 CFR §270.30(l)(4), if required, monitoring results shall be reported at the intervals specified elsewhere in this Permit.

II.E.13. Reports of Compliance Schedules

As set forth at 40 CFR §270.30(l)(5), reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than fourteen (14) days following each scheduled completion date.

II.E.14. Transfer of Permits

- a. As set forth at 40 CFR §264.12(c), before transferring ownership or operation of the Facility or any part of the Facility, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264 and 270 and this Permit. At least ninety (90) days prior to the anticipated date of transfer, the new owner and/or operator shall submit to the EPA a certification, in accordance with Permit Condition II.F, that the new owner or operator has read this Permit, understand its requirements and will comply with the terms and conditions herein. If the property transfer involves subdividing the property to more than one owner or operator, a map and legal description shall be provided to the Director that identifies the properties to be occupied by each new owner.
- b. As noted in the comment to 40 CFR §264.12, an owner or operator's failure to notify the new owner or operator of the requirements of this Permit in no way relieves the new owner or operator of his obligation to comply with all applicable requirements.
- c. This Permit is not transferable to any person except after notice to the Director. To transfer the Permit, the Director may modify or revoke and reissue the Permit in accordance with 40 CFR §270.30(l)(3), 40 CFR §270.40(b) or 40 CFR §270.41(b)(2). The Director may also incorporate such other requirements as may be necessary under RCRA as part of the modification to this Permit.
- d. The new Owner and/or Operator shall submit a revised Permit Application no later than ninety (90) days prior to the scheduled change in ownership and/or operational control. A written agreement containing a specific date for transfer of Permit responsibility between the Permittee and new Permittee(s) must also be submitted no later than ninety (90) days prior to the scheduled change in ownership and/or operational control as set forth at 40 CFR §270.40(b).
- e. Whenever this Permit is transferred to a new Permittee, the old Permittee shall maintain compliance with the requirements of Permit Condition III.P below, until such time as the new Permittee has demonstrated compliance with these requirements. The new Permittee shall demonstrate compliance with the requirements of Permit Condition III.P within six months of the date of the transfer of this Permit. Upon the new Permittee's demonstration of compliance with Permit Condition III.P, the Director shall

notify the old Permittee that maintaining financial assurances pursuant to Permit Condition III.P below is no longer required.

f. In the case of bankruptcy of the Permittee pursuant to Title 11 of the United States Code, the bankruptcy Trustee shall provide the required notices to the Director and shall ensure the new Owner and/or Operator submits a revised Permit Application no later than ninety (90) days prior to the scheduled change in ownership and/or operational control. A written agreement containing a specific date for transfer of Permit responsibility between the Court and/or the old Permittee and new Permittee(s) must also be submitted no later than ninety (90) days prior to the scheduled change in ownership and/or operational control. The new Permittee shall demonstrate compliance with Permit Condition III.P, within six months of the date of the transfer of this Permit. Upon the new Permittee's demonstration of compliance with Permit Condition III.P the Director shall notify the old Permittee that maintaining financial assurances pursuant to Permit Condition III.P is no longer necessary

II.E.15. Twenty-Four Hour Reporting

a. The Permittee shall report to the EPA any noncompliance which may endanger health or the environment. Any such information shall be reported orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. Examples of such occurrences include, but are not limited to, fires, explosions, natural disasters, accidents, imminent or existing hazard from a release of hazardous waste or hazardous constituents, cracks or other breaches in the structure of any hazardous waste units, solid waste management units, areas of concern, any fire or explosion at or near a Permitted unit or other hazardous waste management area, solid waste management unit, areas of concern, or any other occurrence which may cause the release or threatened release of hazardous waste or hazardous waste constituents from any area within the Permitted facility. The report shall include the following:

- i. Information concerning the release of any hazardous waste or hazardous constituents that may endanger public drinking water supplies; and
 - ii. Information concerning the release or discharge of any hazardous waste, or hazardous constituents, or a fire or explosion at the facility, which could threaten the environment or human health outside the facility.
- b. The description of the occurrence and its cause shall include:
- i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the facility;
 - iii. Date, time, and type of incident;
 - iv. Name and quantity of materials involved;
 - v. The extent of injuries, if any;

vi. An assessment of actual or potential hazards to the environment and human health ~~outside the facility, where this is applicable; and~~

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

c. As set forth at 40 CFR §270.30(l)(6)(iii) A written submission shall also be provided to EPA within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period(s) of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and, if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The EPA may waive the five-day written notice requirement in favor of a written report within fifteen (15) days.

II.E.16. Other Noncompliance

a. As set forth at 40 CFR §270.30(l)(10), the Permittee shall report to EPA in writing all other instances of RCRA noncompliance not otherwise required to be reported in Permit Conditions II.E.10 - II.E.15, within thirty (30) days of occurrence. The reports shall contain the information listed in Permit Condition II.E.15.

b. Examples of such instances include, but are not limited to, any noncompliance, no matter how minor, with waste handling and disposal requirements or requirements related to facility safety, including noncompliance with contingency plan requirements. Repeated or chronic instances of noncompliance with recordkeeping requirements must also be reported, although isolated or one-time instances of noncompliance with recordkeeping requirements need not be reported.

II.E.17. Information Repository

As set forth at 40 CFR §270.30(m), the EPA may require the Permittee to establish and maintain an information repository at any time, based on the factors set forth in 40 CFR §124.33(b). The information repository will be governed by the provisions in 40 CFR §124.33 (c) through (f).

II.E.18. Other Information

As set forth at 40 CFR §270.30(l)(11), whenever the Permittee becomes aware that it failed to submit any relevant facts in the Permit Application, or submitted incorrect information in a Permit Application or in any report to the EPA, the Permittee shall submit such facts or information to EPA in writing within seven (7) days of discovery.

II.E.19. Incorporations to the Permit

a. All plans and schedules required by the conditions of this Permit are, upon approval of the Director, incorporated into and enforceable under this Permit. Any noncompliance with such approved plans and schedules shall constitute noncompliance with this Permit.

b. Any portion of the Permit Application referenced by this Permit is incorporated into and enforceable under this Permit. ~~Any noncompliance with such portions of the Permit Application shall constitute noncompliance with this Permit.~~

c. Any changes necessary to items incorporated into the Permit shall be made in accordance with the review and approval procedures in Permit Condition III.S, except that any changes to the Permit Application referenced in Permit Condition I shall be made in accordance with the Permit modification procedures in Permit Condition II.C.

II.E.20. Supplemental Data

All raw data, such as laboratory reports, drilling logs, bench-scale or pilot-scale data, and other supporting information gathered or generated during activities undertaken pursuant to this Permit shall be maintained at the Permitted facility or other such location as approved by the Director during the term of this Permit, including the term of any reissued or continued Permits. Such information shall be made available to the Director upon request.

II.F. SIGNATORY REQUIREMENT

All applications, reports, or information submitted to or requested by the Director shall be signed and certified in accordance with 40 CFR §§270.11 and 270.30(k).

II.G. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE EPA

1. Failure to submit the information required by this Permit, or falsification of any submitted information, is subject to enforcement and/or termination of this Permit.
2. The Permittee shall ensure that all plans, reports, notifications, and other submissions to the Director required by this Permit to be submitted to the EPA are signed and certified in accordance with 40 CFR §§270.11 and 270.30(k).
3. Extensions of the due dates specified in this Permit may be granted by the Director in accordance with the Permit modification procedures set forth in 40 CFR §270.42.
4. Unless otherwise specified, two (2) copies of these plans, reports, notifications or other submissions required by this Permit to be submitted to the EPA shall be sent by certified mail, delivery service or hand delivered to:

U.S. Environmental Protection Agency, Region 7
Air and Waste Management Division
Waste Remediation and Permits Branch
ATTN: Ken Herstowski
11201 Renner Blvd.
Lenexa, Kansas 66219

5. In addition, one (1) copy of these plans, reports, notifications or other submissions shall be submitted to:

Kansas Department of Health and Environment
Curtis State Office Building
Bureau of Waste Management
Hazardous Waste Permits Section
Attn: Mostafa Kamal
1000 SW Jackson, Suite 320 Topeka, KS 66612-1366

6. EPA or KDHE may designate a new recipient in writing to the Permittee without a Permit modification.

II.H. CONFIDENTIAL INFORMATION

As set forth at 40 CFR §270.12, the Permittee may claim confidential any information required to be submitted by this Permit.

II.I. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility, through the term of the Permit or for a minimum of three (3) years, whichever is longer, the following documents and all amendments, revisions and modifications to these documents:

1. Permit Application.
2. Personnel training documents and records, as required by this Permit.
3. Operating record, as required by this Permit.
4. Corrective Action documents, including [RFI, CMS, etc.]
5. Corrective Action Cost Estimate and Financial Assurance documentation, as required by this Permit.
6. Permit modifications file, as required by this Permit

III. CORRECTIVE ACTION

III.A. AUTHORITY

Section 3004(u) of RCRA, 42 U.S.C. §6924, and 40 CFR §264.101, require that all Permits issued after November 8, 1984, address corrective action for all releases of hazardous waste or hazardous constituents from any solid waste management unit (SWMU) at a treatment, storage, or disposal facility seeking the Permit, regardless of when the waste was placed in the unit or whether the unit is closed. Those sections further require that Permits issued under Section 3005 of RCRA, 42 U.S.C. §6925, contain schedules of compliance for corrective action (where corrective action cannot be completed prior to Permit issuance) and assurances of financial responsibility for completing such corrective action. Section 3004(v) of RCRA, 42 U.S.C. §6924(v), authorizes the Administrator to require that corrective action be taken by the facility owner or operator beyond the facility boundary when necessary to protect human health and the environment, unless the owner or operator demonstrates to the Administrator's satisfaction that permission to undertake such action, despite the owner/operator's best efforts, was denied. Section 3005(c)(3) of RCRA, 42 U.S.C. §6925(c)(3), requires that each Permit issued under that section shall contain terms and conditions as the Administrator determines necessary to protect human health and the environment. The Administrator has delegated authority to perform all actions necessary to enforce this Permit to the Director of EPA Region 7 Air and Waste Management Division, (hereafter referred to as "Director") or the Director's designated representative.

III.B. IDENTIFICATION OF SWMUS, AOCs AND RELEASES

1. SWMUs and AOCs were initially identified and described in the RCRA Facility Assessment Report dated March 1989. Subsequent to the report, additional SWMUs have been identified. The table below lists the known SWMUs and AOCs.
2. The Permittee shall submit within thirty (30) days of the effective date of this Permit a Facility map showing the locations of the following SWMUs and AOCs and initiate a class 1 permit modification to include the map as Permit Attachment 2.
3. The Permittee shall within ten (10) days of notice from EPA make a class 1 permit modification to include such other SWMUs and/or AOCs as EPA may designate in this permit condition.

SWMU/AOC	Description
SWMU 1	Used Oil Storage Area/Vehicle Maintenance Building
SWMU 2	Grease Interceptor Sump
SWMU 3	Three Settling Ponds
SWMU 4	Former Waste Fuel System
SWMU 5	Process Sewers
SWMU 6	Used Kerosene Drum
SWMU 7	Empty Drum Storage Area
SWMU 8	Machine Shop Parts Cleaning Area
SMWU 9	Electric Shop Parts Cleaning Area
SWMU 10	Industrial Landfill
SWMU 11	Kiln Dust Landfills A & B (aka Old and New CKD Landfills)

SWMU/AOC	Description
SWMU 12	Raw Material Settling Ponds
SWMU 13	Former Heavy Crude Fuel Storage Tank
SWMU 14	Refractory Brick Storage Area
SWMU 15	Water Treatment System
SWMU 16	Closed Hazardous Waste Management Units
SWMU 17	Old disposal area discovered during demolition
SWMU 18	Frog Pond
AOC A	Outside Coal Storage Area
AOC B	Junkyard
AOC C	Outside Raw Material/Alternative Material Storage
AOC D	Outside Clinker Storage

III.C. NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF NEWLY-IDENTIFIED SWMUS, AOCs AND RELEASES

1. The Permittee shall notify the EPA in writing of any newly-identified SWMU(s), AOCs and releases discovered during the course of groundwater monitoring, field investigations, environmental audits, or other activities or by any other means, no later than fifteen (15) days after discovery. As used in this part of the Permit, the terms “discover”, “discovery”, or “discovered” refer to the date on which the Permittee or an EPA representative either, (1) visually observed evidence of a new SWMU, AOC, or release (2) visually observed evidence of a previously unidentified release of hazardous constituents to the environment, or (3) receives information which suggests the presence of a new release of hazardous waste or hazardous constituents to the environment. The notification shall include, at a minimum, a unique sequential identification number, the location of the SWMU, AOC, or release and all available information pertaining to the nature of the release (e.g., media affected, hazardous constituents released, magnitude of release, etc.).

2. After such notification, the Director may request, in writing, that the Permittee prepare a SWMU, AOC or Release Assessment Work Plan, a proposed schedule of implementation and completion of the Work Plan, and a SWMU, AOC or Release Assessment Report. Additionally, the Director may require a new or supplemental RFI or CMS for the newly-identified SWMU(s), AOC(s) or release(s) in accordance with this Permit.

3. Within sixty (60) days after receipt of notice that the Director requires an Assessment Work Plan, the Permittee shall submit a SWMU, AOC or Release Assessment Work Plan. The Assessment Work Plan shall describe all the activities to be completed in order to characterize the newly-identified SWMU, AOC or release so that the Director can determine if a RCRA Facility Investigation and/or Corrective Measures Study is necessary. The Assessment Work Plan for the investigation shall include any of the following as specified in the Director's notice:

- a. A discussion of past waste management practices at the unit or area;
- b. A sampling and analysis program for groundwater, land surface and subsurface strata, surface water or air, as necessary to determine whether a release of hazardous

waste and/or hazardous constituents from the SWMU or AOC or otherwise has occurred, or is occurring and/or to determine whether the release is harmful to human health or the environment;

- c. A discussion of Data Quality Objectives;
- d. A Quality Assurance Project Plan for the collection and analysis of samples that has been reviewed and approved by EPA and EPA's Quality Assurance personnel;
- e. A proposed schedule for implementation and completion of the Assessment Work Plan.
- f. The sampling and analysis program, if required, shall be capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and/or hazardous constituents from the newly-identified releases to the environment. The Assessment Work Plan shall specify any data to be collected to provide for a complete Assessment Report, as defined below.
- g. The Assessment Work Plan will be reviewed in accordance with the procedures set forth in Permit Condition III.S. Upon EPA's approval of the Assessment Work Plan, the Permittee shall implement said Assessment Work Plan in accordance with the schedules contained therein.

4. The Permittee shall submit an Assessment Report to the EPA according to the schedule specified in the approved Assessment Work Plan. The Assessment Report shall present and discuss the information obtained from implementation of the approved Assessment Work Plan. At a minimum, the Assessment Report shall provide the following information for each SWMU, AOC, and/or newly-identified release:

- a. The location of the newly-identified SWMU, AOC, and/or release, including its location in relation to other SWMUs, AOCs, other areas where a release has occurred, and regulated units;
- b. The type and function of the SWMU, AOC, unit or other release area;
- c. The general dimensions, capacities, and structural description of the SWMU, AOC, unit or other release area;
- d. The period during which the SWMU, AOC, unit or other release area was operated;
- e. The physical and chemical properties of all wastes, and hazardous materials that have been or are being managed at the SWMU, AOC, unit or other release area, to the extent such information is available;
- f. The results of all sampling and analysis conducted;
- g. Past and present operating practices;

- h. Previous uses of the area in which the release occurred;
- i. Amounts of waste and hazardous materials handled; and
- j. Drainage areas and/or drainage patterns near the release.

5. The Assessment Report will be reviewed in accordance with the procedures set forth in Permit Condition III.S. Based on the findings of the Assessment Report, and any other available information, the Director will determine the need for further investigation, interim measures, stabilization, a RCRA Facility Investigation, or a Corrective Measures Study.

III.D. INTERIM MEASURES AND STABILIZATION

1. Interim measures shall be used whenever necessary to achieve the goal of stabilization, which is to control or abate immediate threats to human health and the environment, and to prevent or minimize the spread of contaminants while long-term corrective remedies are being evaluated. The Permittee shall evaluate available data and assess the need for interim measures in addition to any specifically required by this Permit.
2. The Permittee shall notify the Director within twenty-four (24) hours of becoming aware of a situation that requires interim measures, stabilization, or both.
3. If the Director determines that a release or potential release of hazardous waste and/or hazardous constituents poses a threat to human health or the environment, the Director may require interim measures, stabilization, or both to control or abate such threat, or to minimize or prevent the further spread of contamination until final corrective measures can be initiated. The Director will determine the specific action(s) that must be taken to implement interim measures, stabilization or both, including the schedule for implementing the interim measures and/or stabilization requirements, and will inform the Permittee of the action(s) in writing.

The Permittee shall submit an Interim Measures and/or Stabilization Work Plan describing the proposed interim measures and/or stabilization, and an implementation schedule within thirty (30) days of notification by the Director of the interim measures and/or stabilization requirement. The Interim Measures and/or Stabilization Work Plan will be reviewed and approved in accordance with Permit Condition III.S. Upon receipt of written approval by the Director, the Permittee shall implement the Interim Measure and/or Stabilization Work Plan according to the schedules therein. The completion of the interim measures and/or stabilization, in accordance with the work plan, shall be documented by the Permittee in accordance with the approved schedule for the interim measures and/or stabilization work.

4. If at any time, the Permittee determines that the interim measures and/or stabilization activities are not controlling or abating the threat or effectively minimizing or preventing the further spread of contamination, the Permittee must notify the Director in writing no later than ten (10) days after such a determination is made. The Director may then require that the interim measures and/or stabilization activities be revised to make them more effective; or that final corrective measures be implemented to remediate the contaminated media.

III.E. RCRA FACILITY INVESTIGATION WORK PLAN

1. The objectives of the RFI include, but are not limited to, all actions necessary to characterize the nature, direction, three-dimensional extent, rate, movement, and concentration of releases of hazardous waste and/or hazardous constituents from specific SWMUs, AOCs or releases, and their actual or potential receptors. The RFI shall be designed to obtain sufficient information to support further corrective action decisions at the facility.
2. Within ninety (90) days of receipt of a written request from the Director, the Permittee shall prepare and submit to the Director for review and approval in accordance with Permit Condition III.S, a RFI Work Plan for conducting a RFI for those SWMUs, AOCs or releases identified by the Director, and SWMUs, AOCs or releases identified by the Permittee in accordance with Permit Condition III.C and notified by the Director in accordance with Permit Condition III.C.5. The RFI Work Plan(s) shall be consistent with the requirements of the Scope of Work for a RCRA Facility Investigation in the "RCRA Corrective Action Plan", dated May 1994, OSWER Directive Number 9902.3-2A; EPA Document Number 520-R-94-004; and any subsequent revisions or editions. The RFI Work Plan(s) shall also be consistent with the "RCRA Facility Investigation Guidance", dated May 1989, OSWER Directive Number 9502.00-6D, EPA Document Number 530/SW-89-031, and any subsequent revisions or editions. The RFI Work Plan(s) shall describe in detail all proposed activities and procedures to be conducted at the facility and the overall technical and analytical approach to completing all actions necessary to achieve the objectives of the RFI. In order to support corrective action decisions, the RFI Work Plan(s) shall include, but is not limited to:
 - a. A description of the current conditions at the facility;
 - b. The full characterization of the environmental setting;
 - c. The full characterization of the sources and nature of hazardous wastes and constituents;
 - d. The procedures required to achieve full characterization of the three-dimensional extent and rate of on-site and/or off-site migration of releases of hazardous waste and/or hazardous constituents from SWMUs, AOCs and/or releases at the facility and their actual or potential receptors;
 - e. The work to identify and completely characterize all contaminant plumes;
 - f. Identification of any additional SWMUs, AOCs and/or releases not previously identified consistent with Permit Condition III.C;
 - g. Collection of sufficient data to conduct a Risk Assessment consistent with EPA's guidance for risk assessments titled "Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Parts A-D - Interim Final (1989 & 1991)", and any subsequent revisions or editions; and "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments Interim Final (1997), and any subsequent revisions or editions;"

- h. The collection of any other pertinent data which are necessary to support a Corrective Measures Study (CMS) and/or any further corrective action decisions;
 - i. The schedule for implementing and completing such investigations and submitting reports, including the RFI Report;
 - j. A requirement to provide thirty (30) days written advance notice to the Director of the date upon which field work will begin;
 - k. The qualifications of personnel performing or directing the investigations, including contractor personnel; and
 - l. The overall management of the RFI or project organization.
3. The RFI Work Plan shall include the submittal of a Sampling and Analysis Plan (SAP) prepared in accordance with the "RCRA Corrective Action Plan," dated May 1994, OSWER Directive Number 9902.3-2A; EPA Document Number 520-R-94-004; and any subsequent revisions or editions and the "RCRA Facility Investigation Guidance", dated May 1989, OSWER Directive Number 9502.00-6D, EPA Document Number 530/SW-89-031, and any subsequent revisions or editions. The SAP shall include, but not limited to, the following:
- a. Description of all sampling procedures including sample collection by media, field measurement and/or analysis, analytical methods, containerization, preservation, packaging, and shipment (including chain-of-custody) procedures;
 - b. Plans for the handling and disposal of all investigation-derived wastes, such as drilling spoils, water produced during well development, water produced during purging prior to groundwater sample collection, and fluids generated during decontamination of drilling and sampling equipment;
 - c. A map with all SWMUs, AOCs, and/or release areas shown and maps of each SWMU, AOC or release area showing all sampling points, depth intervals, and constituents to be sampled and analyzed for.
4. The RFI Work Plan shall include the submittal of a Quality Assurance Project Plan (QAPP) prepared in accordance with "EPA Requirements for Quality Assurance Project Plans" EPA QA/R-5, March 2001, and "Guidance for Quality Assurance Project Plans" EPA QA/G-5, December 2002, and any subsequent revisions or editions. The QAPP shall present the policies, organization, objectives, functional activities, and specific quality assurance and quality control activities designed to achieve the data quality goals of the RFI. The QAPP shall identify procedures that will be performed during the investigation to characterize the nature and extent of contamination in order to ensure that all information and data resulting from the investigation are technically defensible, representative, and accurate in support of corrective action and risk management decisions. These documents must be reviewed and approved by the EPA Region 7 Quality Assurance Office. The QAPP shall include, but is not limited to, the following:
- a. The RFI objectives, analytical and laboratory methods, field and laboratory quality assurance and quality control samples, chain-of-custody procedures, and data

review and management, validation and reporting procedures, sample collection, field measurement and/or analysis, containerization, preservation, packaging, shipment.

- b. A laboratory QAPP or equivalent which is provided by the laboratory selected to perform sample analysis.
- c. Laboratory methods shall be in accordance with Waste Management System; Testing and Monitoring Activities; Final Rule: Methods Innovation Rule and SW-846 Final Update IIIB. [70 FR 34538, June 14, 2005].

5. The Permittee shall prepare and maintain a health and safety plan during the project that assures the RFI activities are conducted in a manner that is protective of human health and the environment.

III.F. RFI IMPLEMENTATION

Upon receipt of written approval from the Director of the RFI Work Plan, the Permittee shall implement the EPA-approved RFI Work Plan according to the schedules therein and the following:

- 1. The Permittee shall notify the Director at least thirty (30) days prior to any sampling, testing, or monitoring activity required by the RFI Work Plan to give EPA personnel the opportunity to observe investigation procedures and/or obtain split samples.
- 2. Any proposed deviations from the EPA-approved RFI Work Plan must be approved in advance by the Director or his/her designee and fully documented and described in the progress reports and in the RFI Final Report.
- 3. Any additional work necessary to accomplish the RFI will be subject to the requirements of Permit Condition III.N.

III.G. RCRA FACILITY INVESTIGATION REPORT

- 1. The Permittee shall submit an RFI Report according to the schedule contained in the EPA-approved RFI Work Plan and/or any EPA-approved RFI Work Plan Addenda. The RFI Report shall be consistent with the requirements of the "RCRA Corrective Action Plan," dated May 1994, OSWER Directive Number 9902.3-2A; EPA Document Number 520-R-94-004; and any subsequent revisions or editions. The RFI Report shall also be consistent with the "RCRA Facility Investigation Guidance," dated May 1989, OSWER Directive Number 9502.00-6D, EPA Document Number 530/SW-89-031, and any subsequent revisions or editions. The RFI Report shall present all information gathered under the EPA-approved RFI Work Plan and/or any EPA-approved RFI Work Plan Addenda along with a facility description and map showing the property boundary and all SWMUs, AOCs, and other areas where a release occurred. The RFI Report must contain sufficient information to support further corrective action decisions at the facility. The RFI Report shall describe the procedures, methods, and results of all investigations of newly-identified SWMUs and AOCs and associated releases, including but not limited to the following:

- a. Characterization of the extent, nature, direction, rate, movement and concentration of releases from the facility.
 - b. Characterizations of the environmental setting at the facility, including:
 - i. Hydrogeological conditions;
 - ii. Climatological conditions;
 - iii. Soil characteristics;
 - iv. Surface water and sediment quality; and
 - v. Air quality and meteorological conditions.
 - c. Characterization of SWMUs, AOCs, or other areas from which releases have been or may be occurring, including unit and waste or hazardous constituent characteristics.
 - d. Descriptions of human populations and environmental systems which are, may have been, or, based on site-specific circumstances, may be exposed to release(s).
 - e. Any other information that will assist the Director in assessing risks to human health and the environment from releases from SWMUs, AOCs, or other unit/area.
 - f. Conclusions regarding future contaminant movement.
 - g. Laboratory, bench-scale or pilot-scale tests or studies conducted to determine the feasibility or effectiveness of treatment technologies or other technologies that may be appropriate in implementing remedies at the facility.
 - h. Statistical analyses to aid in the interpretation of data.
 - i. Results of any interim measures.
 - j. Any deviations from the EPA-approved RFI Work Plan.
2. After the Permittee submits the RFI Report, the Director will review and approve the RFI Report in accordance with the procedures set forth in Permit Condition III.S.
 3. If the Director determines that additional investigation or study of SWMUs or AOCs is necessary, the Permittee will conduct those activities in accordance with Permit Condition III.N.
 4. If the Director determines that an interim measure or corrective measure is required, the Director will notify the Permittee in writing and request either interim measures as specified in Permit Condition III.D or a corrective measures study as specified in Permit Conditions III.H and III.J.

III.H. CORRECTIVE MEASURES STUDY WORK PLAN

1. If the Director determines that there has been a release of hazardous waste and/or hazardous constituents that may present a threat to human health or the environment, the Director may require a Corrective Measures Study (CMS) and will notify the Permittee in writing.
2. The Permittee shall submit three (3) copies of a CMS Work Plan to the Director within sixty (60) days of notification of the requirement to conduct a CMS. The CMS Work Plan shall describe all the investigations, studies and other work necessary to select a corrective measure or measures to protect human health and the environment from releases of hazardous wastes and hazardous constituents. Corrective measures described in the CMS Work Plan may include measures that incorporate engineering or institutional controls subject to EPA's approval. The CMS Work Plan shall be consistent with the most recent version of the EPA guidance document entitled, RCRA Corrective Action Plan (EPA/520-R-94-004).
3. If the CMS Work Plan will consider corrective measures that leave contamination onsite at a level that does not allow for unrestricted use and unlimited exposure, the Permittee shall include as a component of such corrective measures a plan to implement institutional and/or engineering controls to prevent unacceptable exposures to human health and the environment in perpetuity. Such a plan shall be consistent with EPA guidance including but not limited to "Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups," EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000 and the draft "Institutional Controls: A Guide to Implementing, Monitoring, and Enforcing Institutional Controls at Superfund, Brownfields, Federal Facility, UST and RCRA Corrective Action Cleanups," February 2003.
4. At a minimum, the CMS Work Plan shall provide the following information:
 - a. A description of the general approach to investigating and evaluating potential corrective measures;
 - b. A site specific description of the overall purpose of the corrective measures study;
 - c. A description of the corrective measures objectives, including proposed target media cleanup standards and points of compliance or a description of how a risk assessment will be performed;
 - d. A definition of the specific objectives of the Corrective Measure Study;
 - e. A description of the specific corrective measure technologies and/or corrective measure alternatives which will be studied;
 - f. A detailed description of any proposed pilot, laboratory and/or bench-scale studies;

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- g. A description of overall project management including overall approach, levels of authority, lines of communication, project schedules, budget and personnel. Include a description of qualifications for personnel directing or performing the work;
- h. A description of the method to be used to evaluate corrective measures. The CMS Work Plan shall specify that the CMS Report will include an evaluation of each corrective measure studied using, at a minimum, four "threshold criteria" and five "balancing criteria."
- i. Threshold criteria:
- i. Protection of human health and the environment;
 - ii. Attainment of media cleanup standards set by, or risk-based standards approved by, EPA;
 - iii. Controlling the sources of releases to reduce or eliminate further releases that may pose a threat to human health and the environment, and
 - iv. Compliance with applicable standards for management of wastes.
- j. Balancing criteria:
- i. Long-term reliability and effectiveness;
 - ii. Reduction of toxicity, mobility or volume of wastes;
 - iii. Short-term effectiveness;
 - iv. Implementability; and
 - v. Cost.
- k. The schedules for conducting the Corrective Measures Study and submitting a Corrective Measures Study Report;
- l. A requirement to provide thirty (30) days written advance notice to the Director of the date upon which field work will begin; and
- m. The proposed format for the presentation of information in the Corrective Measures Study Report. The format for the CMS Report shall include at a minimum:
- i. Introduction/Purpose;
 - ii. Description of Current Conditions;
 - iii. Media Cleanup Standards;

iv. Identification, Screening, and Development of Corrective Measures Alternatives;

v. Evaluation of a Final Corrective Measures Alternative;

vi. Recommendation by Permittee for a Final Corrective Measure Alternative;
and

vii. Public Involvement Plan.

n. The Director may require the Permittee to evaluate as part of the CMS one or more specific potential remedies. These remedies may include a specific technology or combination of technologies that, in the EPA's judgment, achieves protection of human health and the environment.

o. The Director will review the CMS Work Plan in accordance with the procedures set forth in the Permit Condition III.S.

III.I. CORRECTIVE MEASURES STUDY WORK PLAN IMPLEMENTATION

1. Upon receipt of written approval from the Director for the CMS Work Plan, the Permittee shall implement the EPA-approved CMS Work Plan according to the schedules therein and the following:

2. The Permittee shall notify the Director at least thirty (30) days prior to any sampling, testing, or monitoring activity required by the CMS Work Plan to give EPA personnel the opportunity to observe investigation procedures and/or obtain split samples.

3. Any proposed deviations from the EPA-approved CMS Work Plan must be approved in advance by the Director or his/her designee and fully documented and described in the progress reports and in the CMS Report.

4. Any additional work necessary to accomplish the CMS will be subject to the requirements of Permit Condition III.N.

III.J. CORRECTIVE MEASURES STUDY REPORT

1. The Permittee shall submit three (3) copies of a CMS Report according to the schedule contained in the approved CMS Work Plan. The CMS Report shall present all information gathered under the approved CMS Work Plan and shall be consistent with the most recent version of the EPA guidance document entitled, RCRA Corrective Action Plan (EPA/520-R-94-004).

2. If the CMS Report proposes corrective measures that leave contamination onsite at a level that does not allow for unrestricted use and unlimited exposure, the Permittee shall include as a component of such corrective measures a plan to implement institutional and/or engineering controls to prevent unacceptable exposures to human health and the environment in perpetuity. Such a plan shall be consistent with EPA guidance including but not limited to

“Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups,” EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000 and the draft “Institutional Controls: A Guide to Implementing, Monitoring, and Enforcing Institutional Controls at Superfund, Brownfields, Federal Facility, UST and RCRA Corrective Action Cleanups,” February 2003.

3. The CMS Report shall include:

- a. A brief summary discussion of any new information that would significantly effect the evaluation and selection of the corrective measures alternative;
- b. A summary of the risks to human health and the environment which require implementation of a corrective measure(s);
- c. Proposed media cleanup standards for the protection of human health and the environment;
- d. The results of the investigations for each remedy studied and of any bench-scale or pilot tests or modeling (if applicable) conducted;
- e. An estimate of the costs for implementing each corrective measure;
- f. A detailed evaluation of each corrective measure using the four threshold criteria and the five balancing criteria listed in Permit Conditions III.H.4.i and III.H.4.j; and
- g. The Permittee's recommendation, with justification, of the appropriate corrective measure or measures, based upon the above criteria and the information in Permit Conditions III.H.4.i and III.H.4.j.

4. The Director may require the Permittee to evaluate as part of the CMS one or more specific potential corrective measures. These corrective measures may include a specific technology or combination of technologies that, in the EPA's judgment, achieves protection of human health and the environment.

5. The CMS Report must contain adequate information for the Director to select the corrective measure(s) necessary to protect human health and the environment from releases of hazardous wastes and hazardous constituents at or from the Facility.

6. The CMS Report will be reviewed in accordance with the procedures set forth in Permit Condition III.S.

III.K. CORRECTIVE MEASURES SELECTION

III.K.1. Corrective Measures Selection

The Director will select corrective measure(s) that will (1) protect human health and the environment; (2) attain media cleanup standards set by the Director; (3) control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases that may pose a threat to human health and the environment; and (4) comply with any applicable standards

for management of wastes. Before selecting corrective measures, the Director will prepare a Statement of Basis that identifies the preferred corrective measure or measures and provides the reasons for the selection. The Director will make a final corrective measures decision after public notice and public review of the Statement of Basis and review of all public comments. If necessary, EPA will initiate a Permit modification pursuant to 40 CFR § 270.41 to require implementation of the preferred corrective measure or measures. Alternatively, this Permit may be modified by the Permittee pursuant to 40 CFR §270.42(c) for the implementation of the EPA selected corrective measure or measures.

III.K.2. Corrective Measures Selected to Date

EPA selected corrective measures to protect human health and the environment and to remediate releases of hazardous waste and hazardous constituents. EPA's corrective measures decision is included as Permit Attachment 3. The corrective measures are:

III.K.2.a. Engineering Control

Engineering controls as specified below are to be provided to the following SWMUs:

SWMU 10	Industrial Landfill
SWMU 11	Kiln Dust Landfills A & B (aka Old and New CKD Landfills)

- i. The Permittee shall within ten (10) days of notice from EPA make a class 1 permit modification to include such other SWMUs or AOCs as EPA may designate in this permit condition.
- ii. The Permittee shall design, install and maintain a low permeability cover over the solid waste and materials disposed in the SWMUs.
- iii. The Permittee shall design, install and maintain a layer of soil over the low permeability cover sufficient to protect the low permeability cover from infiltration and frost and to support and maintain vegetation planted to prevent erosion of the layer of soil and the underlying low permeability cover by providing moisture retention and sufficient medium for vegetation to grow.
- iv. The Permittee shall plant and maintain vegetation in the soil layer overlying the low permeability cover of a type that will prevent erosion of the layer of soil and the underlying low permeability cover and will not damage the underlying low permeability cover's integrity.
- v. The Permittee shall design, install and maintain all necessary features and appurtenances to the low permeability cover to control and prevent damage to the cover from run on and run off of precipitation and flooding.
- vi. The Permittee shall design, install and maintain all necessary features and appurtenances to prevent trespass, livestock or any other activity to damage the

low permeability cover over the solid waste and materials disposed in the SWMUs.

III.K.2.b. Work Practices

The Permittee shall not conduct any activity in SWMU or AOC that would result in exposure of workers, visitors or other persons to hazardous waste or hazardous constituents located at the SWMU or AOC or released from the SWMU or AOC unless such exposure to the hazardous waste or hazardous constituents will not result either in a risk of cancer greater than 1×10^{-6} or a non-cancer hazard index greater than 1.

III.K.2.c. Institutional Controls

The following institutional controls (IC) are established by this Permit to ensure the effectiveness of the engineering controls and to prevent use of the facility that would cause exposure to hazardous waste or hazardous constituents which would adversely affect human health and the environment as follows:

- i. IC for low permeability cover, soil layer, and other associated features and appurtenances in Permit Condition III.K.2.a: The Permittee shall not nor shall the Permittee allow others to use, construct or engage any activity which could damage or interfere with the low permeability cover, soil layer, and other associated features and appurtenances in Permit Condition III.K.2.a,
- ii. IC for on-site ground water: The Permittee shall not use, construct or install any water extraction well at the Facility, without the prior written approval of the KDHE and the EPA.
- iii. IC on facility use: The Permittee shall not use any portion of the Facility property for any use other than industrial or commercial use, except that child care facilities shall also be prohibited.
- iv. IC for soil: The Permittee shall not excavate or remove any surface or subsurface soil or sediments, except for excavation or removal in conformance with a KDHE and EPA-approved Corrective Measures Implementation Work Plan. The Permittee shall maintain and update, as necessary, a Corrective Measures Implementation Plan for (a) testing and proper management of any contaminated environmental media that may be encountered at the Facility; and (b) ensuring that construction workers, maintenance workers and Facility employees will be required to have training appropriate for their level of exposure prior to engaging in any such activities that may involve contact with soil and/or ground water at the Facility.
- v. Exceptions to the activity and use limitations set forth in the foregoing paragraph include minor excavations necessary to install, maintain or repair utility poles, fence posts, sidewalks, paving, and other comparable activities, as

well as minor excavations necessary to maintain or repair existing underground utilities and minor excavations in connection with landscaping activities.

- vi. The Permittee shall not construct, repair or alter the Facility in any fashion that would damage or interfere with the corrective measures without an approval from the Director and in accordance with an amended Corrective Measures Implementation Plan.
- vii. Notwithstanding the foregoing activity and use restrictions, the Permittee may submit a permit modification request, with appropriate technical and other supporting information, that one or more of the foregoing activity and use restrictions should be modified or terminated. Such request shall be made in accordance with Permit Condition II.C.2.

III.K.2.d. Monitoring and Performance Evaluation

The Permittee shall monitor the effectiveness and performance of the corrective measures and determine any failures of the corrective measures. The results of this monitoring and evaluation shall be presented to EPA in the annual report required by Permit Condition III.L.4.

- i. The Permittee shall submit three (3) copies of a groundwater monitoring plan for SWMU 11 to the Director within ninety (90) days of the effective date of this Permit. The groundwater monitoring plan shall include:
 - (1) Design Plans and Specifications
 - (2) Operation and Maintenance
 - (3) Cost Estimate
 - (4) Sampling and Analysis Plan
 - (5) Quality Assurance Project Plan
 - (6) Data Management
 - (7) Recordkeeping Plan
 - (8) Waste Management Plan
 - (9) Project Schedule, including provisions for thirty (30) days written advance notice of any field work
- ii. The Director will review and approve the groundwater monitoring plan in accordance with the procedures set forth in the Permit Condition III.S.

- iii. The Permittee shall immediately implement the groundwater monitoring plan upon its approval conducting all activities in accordance with the schedule therein.
- iv. The Permittee shall complete a class 1 permit modification within thirty (30) days of approval of the groundwater monitoring plan to include the approved plan as Permit Attachment 4.

III.L. CORRECTIVE MEASURES IMPLEMENTATION

III.L.1. Corrective Measure Implementation Work Plan

- a. Within sixty (60) days after receipt of notice that the Director requires corrective measures, the Permittee shall submit a Corrective Measures Implementation Work Plan (CMIWP) to implement the selected corrective measure(s). The CMIWP is subject to approval by the Director and shall be developed in a manner consistent with the CMI Scope of Work in the "RCRA Corrective Action Plan" EPA 520-R-94-004, OSWER Directive 9902.3-2A, May 1994, incorporated herein.
- b. The CMIWP shall detail the design, construction, operation, maintenance, and monitoring of the selected corrective measure. If the CMI will consider corrective measures that leave contamination onsite at a level that does not allow for unrestricted use and unlimited exposure, the Permittee shall include as a component of such corrective measures a plan to implement institutional and/or engineering controls to prevent unacceptable exposures to human health and the environment. Within ten (10) days of a request by the Director, the Permittee shall provide an editable version of the CMIWP in an electronic format acceptable to EPA. The CMIWP, at a minimum, shall include the following sections:
 - i. Project Management
 - ii. Public Involvement
 - iii. Design Plans and Specifications
 - iv. Operation and Maintenance
 - v. Monitoring and Recordkeeping Plan
 - vi. Cost Estimate
 - vii. Project Schedule, including provisions for thirty (30) days written advance notice of any field work
 - viii. Construction Quality Assurance/Quality Control Program
 - ix. Sampling and Analysis Plan

- x. Quality Assurance Project Plan
 - xi. Data Management
 - xii. Waste Management Plan
 - xiii. Periodic Reports, including the Construction Complete Report
- c. Institutional Control (IC) Plan: If an IC Plan is necessary, the Permittee shall provide in the CMIWP a detailed IC plan for the establishment of ICs, as required below:
- i. The ICs shall be consistent with EPA guidance including but not limited to "Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups," EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000 and the draft "Institutional Controls: A Guide to Implementing, Monitoring, and Enforcing Institutional Controls at Superfund, Brownfields, Federal Facility, UST and RCRA Corrective Action Cleanups," February 2003 . The CMIWP shall include drafts of all proposed IC documents. The CMIWP shall include a schedule for the implementation of the IC plan. Upon approval of the CMIWP by the Director, the Permittee shall implement the IC plan.
- d. Long-Term Inspection, Monitoring and Maintenance: The Permittee shall provide in the CMIWP required above a detailed plan to conduct long-term monitoring, inspection, maintenance, recordkeeping and reporting to demonstrate and report the effectiveness of the corrective measures. The plan shall include inspection, monitoring and maintenance of the ECs and monitoring and review of ICs. The Permittee shall determine if any construction or excavation has not been in accordance with the ICs above. Upon approval of the CMIWP by the Director, the Permittee shall implement the long-term monitoring, inspection, maintenance, recordkeeping and reporting plan.
- e. Concurrent with the submission of a CMIWP, the Permittee shall submit to the Director a CMI Health and Safety Plan.
- f. The Director will review the CMIWP for approval in accordance with the procedures set forth in Permit Condition III.S below. Upon approval thereof by the Director, the Permittee shall implement the plan in accordance with the schedule contained therein. The Permittee shall also submit an electronic copy of the CMIWP in an electronic format acceptable to EPA that incorporates all changes and/or revisions required for, or as, a condition of approval.

III.L.2. Corrective Measures Implementation

- a. Upon receipt of written approval from the Director for the CMIWP, the Permittee shall implement the EPA-approved CMIWP according to the schedules therein and the following:

- b. The Permittee shall notify the Director at least thirty (30) days prior to any ~~sampling, testing, or monitoring activity required by the CMIWP~~ to give EPA personnel the opportunity to observe investigation procedures and/or obtain split samples.
- c. Any proposed deviations from the EPA-approved CMIWP must be approved in advance by the Director or his/her designee and fully documented and described in the progress reports and in the Corrective Measures Construction Completion Report.
- d. Any additional work necessary to implement the Corrective Measures will be subject to the requirements of Permit Condition III.N.

III.L.3. Corrective Measures Construction Completion Report

The Permittee shall submit a Corrective Measures Construction Completion Report (CMCCR) to the Director in accordance with the approved CMIWP schedule. Within ten (10) days of a request by the Director, the Permittee shall provide an editable version of the CMCCR in an electronic format acceptable to EPA. The CMCCR shall be consistent with the "RCRA Corrective Action Plan" EPA 520-R-94-004, OSWER Directive 9902.3-2A, May 1994, incorporated herein. The CMCCR shall, at a minimum, include the following:

- a. Description of the purpose of the CMCCR;
- b. Synopsis of the corrective measure, design criteria, and certification that the corrective measure was constructed in accordance with the final plans and specifications as contained in the CMI Work Plan;
- c. Explanation and description of any modifications to the EPA approved CMI Work Plan and specifications and why these were necessary for the project;
- d. Results of any operational testing and/or monitoring, indicating how initial operation of the corrective measure compares to the design criteria;
- e. Summary of significant activities that occurred during construction, including a discussion of problems encountered and how they were addressed;
- f. Summary of any inspection findings (include copies of key inspection documents in appendices); and
- g. As built drawings or photographs depicting the constructed corrective measure(s).

III.L.4. Corrective Measures Implementation Annual Report

The Permittee shall submit a CMI Annual Report to the Director no later than March 1 of each year of the prior year's performance of the corrective measures above, including IC's. The CMI Annual Report shall include documentation of all samples and data collected and their analysis, and an evaluation of both the short-term and long-term effectiveness of the corrective measures. The CMI Annual Report shall include any deficiencies or violations of ECs or ICs determined from the inspection, maintenance, and monitoring required in Permit Condition III.L.1.d. Based upon EPA's

review of the report, the Director may require the Permittee to conduct additional investigation, study, and/or work in order to modify an existing corrective measure or to select a new corrective measure or measures. If action is needed to protect human health or the environment from releases or to prevent or minimize the further spread of contamination while long-term remedies are pursued, the Director may require the Permittee to implement Interim Measures pursuant to Permit Condition III.D. Note that the Permittee must still report all instances of non-compliance as required elsewhere by Part II.

III.L.5. Corrective Measures Implementation Five-year Review

- a. The Permittee shall submit a report to evaluate the corrective measures effectiveness and performance every five (5) years to the Director. Within sixty (60) days after the 5-year anniversary of EPA's approval of the CMCCR, the Permittee shall submit to EPA for review and approval a 5-Year Corrective Measures Performance Evaluation Report. The evaluation shall be consistent with the CERCLA Comprehensive Five-Year Review Guidance, OSWER9355.7-03B-P, and any subsequent revisions or additions, and include the following:
 - i. Annual reports required in Permit Condition III.L.4
 - ii. Effectiveness of corrective measures in protecting human health and the environment as planned in the Statement of Basis.
 - iii. Effectiveness of ECs and ICs in protecting human health and the environment as planned in the Statement of Basis.
 - iv. Results of sampling and analysis to determine the effectiveness and performance of the corrective measures.
 - v. Any changed circumstances that render the corrective measure, including ECs and ICs, ineffective.
 - vi. Possible modifications to the corrective measures to provide necessary protection.
 - vii. Any other reporting requirements included in the EPA approved CMIWP.
- b. Based upon EPA's review of the report, the Director may require the Permittee to conduct additional investigation, study, and/or work in order to modify an existing corrective measure or to select a new corrective measure or measures. If action is needed to protect human health or the environment from releases or to prevent or minimize the further spread of contamination while long-term remedies are pursued, the Director may require the Permittee to implement Interim Measures pursuant to Permit Condition III.D.

III.L.6. Corrective Measure Completion Report

a. The Permittee shall submit a Corrective Measures Completion (CMC) Report to the Director within ninety (90) days of the completion of all remedial activities required by Permit Condition III and generally conform to the "RCRA Corrective Action Plan" EPA 520-R-94-004, OSWER Directive 9902.3-2A, May 1994, incorporated herein. The purpose of the CMC Report is to fully document how the corrective measure completion criteria have been satisfied and to justify why the corrective measure and/or monitoring may cease. The CMC Report shall, at a minimum, include the following elements:

- i. Purpose;
- ii. Synopsis of the corrective measure;
- iii. Corrective Measure Completion Criteria: Describe the process and criteria for determining when corrective measures, maintenance and monitoring may cease. Corrective measure completion criteria were given in the final Operation and Maintenance (O&M) Plan;
- iv. Demonstration that the completion criteria have been met. Include results of testing and/or monitoring, indicating how operation of the corrective measure compares to the completion criteria;
- v. Summary of work accomplishments (e.g., performance levels achieved, total treated and/or excavated volumes, nature and volume of wastes generated, etc.);
- vi. Summary of significant activities that occurred during operations. Include a discussion of problems encountered and how they were addressed;
- vii. Summary of inspection findings (include copies of key inspection documents in appendices);
- viii. Summary of total operation and maintenance costs; and
- ix. Determination of whether ECs and/or ICs are required to continue to be maintained.

b. The Director will review the CMC Report for approval in accordance with the procedures set forth in Permit Condition III.S. The Permittee shall also submit an electronic copy of the report in a format and on a media approved by the Director that incorporates all changes and/or revisions required for approval. Upon approval of the CMC Report, the Director shall notify the Permittee in writing of release from financial assurance obligations.

c. The requirements for ICs and ECs shall be maintained as specified in this Permit and shall not be terminated until EPA has determined that the concentration of hazardous constituents in the soil and groundwater are at such levels to allow for unlimited use and unrestricted exposure.

III.M. CHANGE IN PROPERTY USE

Before the property use can be changed from that evaluated in the RFI and/or CMS, relied upon during remedy selection or established in Permit Condition III.K.2.c, the Permittee shall submit a request for a permit modification that includes a new risk assessment and corrective measures study to addresses potential exposures associated with the proposed property use. The Director will review the revised risk assessment/CMS Report for approval in accordance with the procedures set forth in Permit Condition III.S. Changes in corrective measures shall be selected in accordance with procedures in Permit Condition III.K.1. A permit modification request shall be made in accordance with Permit Condition II.C.2. Upon final selection and modification into the Permit, the Permittee shall implement the new corrective measure.

III.N. ADDITIONAL WORK

If at any time during implementation of corrective action under this Permit the EPA determines that additional work is necessary to accomplish the corrective action required under this Permit, EPA will provide written notification to the Permittee of the requirement for additional work to be performed by the Permittee. EPA may determine that certain tasks, including, but not limited to, investigatory work or engineering evaluation are necessary in addition to the tasks and deliverables already required under this Permit. EPA will specify the basis and reasons for its determination that the additional work is necessary and will request submittal of a draft work plan to perform the additional work. Within sixty (60) days of the EPA's request, the Permittee shall submit a draft work plan for EPA review and approval pursuant to Permit Condition III.S. Upon EPA approval, the Permittee shall perform the additional work according to the EPA-approved work plan. The completion of the additional work, as specified in this Permit Condition, shall be documented by the Permittee in accordance with the approved schedule for the additional work.

III.O. COST ESTIMATE FOR CORRECTIVE ACTION WORK

1. Within sixty (60) days after receipt of notice from EPA to submit a cost estimate, the Permittee shall prepare and maintain a detailed written cost estimate, in current dollars, of the cost of hiring a third party to perform all of the work required by the Permittee under this Permit (hereafter the "Work"). The cost estimate shall also include long term costs such as operation and maintenance costs and monitoring costs. A third party is a party who (i) is neither a parent nor a subsidiary of Permittee, and (ii) does not share a common parent or subsidiary with Permittee. The cost estimate shall not incorporate any salvage value that may be realized from the sale of wastes, facility structures or equipment, land or other assets associated with the facility.
2. Within thirty (30) days of approval by the Director of any new, additional, or revised work plan or implementing document, or work otherwise required under this Permit, the Permittee shall submit to the Director for review and approval a revised cost estimate of the Work, to include that outlined in the EPA-approved work plan and/or implementing documents. In addition, Permittee shall adjust the estimated cost of the Work if the Director determines that either additional work is required, pursuant to Permit Condition III.N., or if any other condition increases the estimated cost of the Work to be performed under this Permit. The Director will review the revised cost estimate in accordance with Permit Condition III.S. The Director will

notify the Permittee in writing of the Director's approval, disapproval, or modification of the cost estimate in accordance with Permit Condition III.S. The Director may waive in writing the requirement for a cost estimate for any document at his/her discretion.

3. Annually, Permittee shall adjust the estimated cost of the Work for inflation. The inflation adjustment shall be determined by using the procedures described in 40 CFR 264.142(b) except that the inflation factor should be derived from the most recent annual Implicit Price Deflator for the Gross Domestic Product instead of the Gross National Product, for the estimated cost of the Work. The annual adjustments are required until the Work required by Permit Condition III is completed. The Permittee shall annually adjust the estimated cost of the Work for inflation within thirty (30) days prior to the anniversary date of the establishment of the financial instrument(s), or within thirty (30) days after the close of the fiscal year if a financial test or corporate guarantee is used. The cost estimate of all of the Work required by the Permittee under this Permit adjusted appropriately and up to date for inflation shall be referred to as the EPA-approved estimated cost of the Work.

4. If the Permittee believes that the estimated cost of the Work remaining to be completed has diminished below the most recent EPA-approved cost estimate, the Permittee may, at the same time that the Permittee submits the annual cost adjustment, pursuant to Permit Condition III.O.3, or at any other time agreed to by the Director, submit a revised cost estimate of the Work to the Director for review and approval according to procedures set forth in Permit Condition III.S. If EPA decides to accept and approve the revised cost estimate, the Director will notify the Permittee in writing that the financial assurance mechanism may be adjusted according to the new EPA-approved cost estimate of the Work and in accordance with Permit Condition III.P.6.

III.P. FINANCIAL ASSURANCE FOR COMPLETING THE WORK

In order to secure the full and final completion of the Work in accordance with this Permit, the Permittee shall establish and maintain financial assurance for the benefit of the EPA in the amount of the most recent EPA-approved estimated cost of the Work adjusted for inflation, as required in Permit Condition III.O. Within thirty (30) days after the Director has approved the initial and any subsequent Estimated Cost of Work, including adjustment for inflation, in accordance with Permit Condition III.O, the Permittee shall submit draft financial assurance instruments and related documents to the Director, for the Director's review and approval in accordance with Permit Condition III.S. Within ten (10) days after the Director's approval of the draft financial assurance instruments, the Permittee shall execute or otherwise finalize all instruments or other documents required in order to make the selected financial assurance legally binding in a form substantially identical to the financial assurance documents reviewed and approved by the Director. The Permittee shall submit all original executed and/or otherwise finalized financial assurance instruments or other documents to the Director within thirty (30) days after the Director's approval of the draft financial assurance instruments.

Any references in this Permit Condition to the requirements of 40 CFR Part 264, Subpart H shall be construed to require the Permittee to comply with the substantive requirements for each instrument. In addition, rather than imposing requirements to provide cost estimates for closure and post-closure activities these provisions require a demonstration that the Permittee has obtained sufficient financial assurances to complete any work for which cost estimates are required by this Permit. Finally, any

financial assurance instrument submitted under this Permit shall recite that the instrument is established to ensure completion of any work for which cost estimates are required under this Permit rather than reciting that the instrument is being submitted for closure and post-closure activities.

III.P.1. Financial Assurance Instruments

A Permittee may use one or more of the financial assurance forms generally described in Permit Condition III.P.1.a-f below. Any and all financial assurance instruments provided pursuant to this Permit shall be satisfactory in form and substance as determined by the Director. The Director may limit the choices of the Permittee, to one or more of the instruments described below.

- a. A trust fund established for the benefit of EPA, administered by a trustee who has the authority to act as a trustee under Federal or State law and whose trust operations are regulated and examined by a Federal or State agency, and that is acceptable in all respects to the Director. The trust agreement shall provide that the trustee shall make payments from the fund as the Director shall direct in writing (1) to reimburse the Permittee from the fund for expenditures made by the Permittee for Work performed in accordance with this Permit, or (2) to pay any other person whom the Director determines has performed or will perform the Work in accordance with this Permit. The trust agreement shall further provide that the trustee shall not refund to the grantor any amounts from the fund unless and until the Director has advised the trustee that the Work under this Permit has been successfully completed.
- b. A surety bond unconditionally guaranteeing performance of the Work in accordance with this Permit, or guaranteeing payment at the direction of the Director into a standby trust fund that meets the requirements of the trust fund in Permit Condition III.P.1.a above. The surety company issuing the bond shall, at a minimum, be among those listed as acceptable sureties on Federal Bonds as set forth in Circular 570 of U.S. Department of the Treasury, and be acceptable to the Director.
- c. An irrevocable letter of credit, payable at the direction of Director, into a standby trust fund that meets the requirements of the trust fund in Permit Condition III.P.1.a above. The letter of credit shall be issued by a financial institution that has the authority to issue letters of credit, and whose letter-of-credit operations are regulated and examined by a Federal or State agency.
- d. A policy of insurance that: (i) provides EPA with acceptable rights as a beneficiary; (ii) is issued by an insurance carrier (Insurer) licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States; (iii) has a face value at least equal to the current post-closure cost estimate or estimated cost of the Work to be performed under this permit, except where costs not covered by the policy are covered by another financial assurance instrument; (iv) is automatically renewable at the face amount of the expiring policy; (v) contains a provision that allows the policy to be assigned or transferred to a successor Permittee; (vi) provides that the Insurer make payments as directed in writing by the Regulators to (a) reimburse the Permittee for expenditures made by the Permittee for Work performed in accordance with this permit, or (b) pay any other person whom the

Regulators determines has performed or will perform Work in accordance with this permit, ~~up to an amount equal to the face amount of the policy;~~ (vii) stipulates the Insurer may not cancel, terminate or fail to renew the policy except if the Permittee fails to pay the premiums; (viii) stipulates that if the Permittee fails to pay the premiums and the Insurer wants to cancel, terminate or fail to renew the policy, the Insurer must give the Regulators and the Permittee 120 days written notice. Cancellation, termination or failure to renew may not occur during the 120 days beginning with the date of receipt of the notice by both the Regulators and the Permittee; and (ix) stipulates that the cancellation, termination, or failure to renew the policy may not occur and the policy will remain in full force and in effect if, before the date of expiration, the Permittee declares bankruptcy or is named as a debtor in a voluntary or involuntary proceeding under USC Title 11 – Bankruptcy, or other events occur such as abandonment, termination, revocation, denial of this permit, or if the Regulators notifies the Insurer of the Permittee's failure to perform.

e. A corporate guarantee, executed in favor of the EPA by one or more of the following; (i) a direct or indirect parent company, or (ii) a company that has a "substantial business relationship" with the Permittee (as defined in 40 CFR § 264.141(h)); to perform the Work in accordance with this Permit or to establish a trust fund as permitted by Permit Condition III.P.1.a above; provided, however, that any company providing such a guarantee shall demonstrate to the satisfaction of the Director that it satisfies the financial test requirements of 40 CFR § 264.143(f) with respect to the EPA-approved estimated cost of the Work that it proposes to guarantee; or

f. A demonstration by Permittee that the Permittee meets the financial test criteria of 40 CFR § 264.143(f) with respect to the EPA-approved estimated cost of the Work, provided that all other requirements of 40 CFR § 264.143(f) are satisfied.

g. The allowance to use the corporate guarantee pursuant to Permit Condition III.P.1.e or the financial test pursuant to Permit Condition III.P.1.f shall be at the sole discretion of the Director and not subject to the dispute resolution under Permit Condition III.T. If a Permittee provides financial assurance by means of a corporate guarantee or financial test, the Director may request additional information (including financial statements and accountant's reports) from the Permittee or corporate guarantor at any time. If the Director determines that the use of the corporate guarantee pursuant to Permit Condition III.P.1.e or the financial test pursuant to Permit Condition III.P.1.f no longer fulfills the financial assurance requirements, the Director shall notify the Permittee of such determination and require a change in the financial assurance instrument pursuant to Permit Condition III.P.8. The Permittee shall submit a revised form of financial assurance within thirty (30) days of such notification by the Director.

h. For the purposes of the financial test guarantees described in Permit Conditions III.P.1.e and III.P.1.f above, references in 40 CFR § 264.143(f) to "the sum of current closure and post-closure costs and the current plugging and abandonment cost estimates" shall mean the sum of all environmental obligations including obligations under CERCLA, RCRA, UIC, TSCA, and any other environmental obligation guaranteed by such company as "financial assurance" or for which such company is

otherwise financially obligated in addition to the most recent EPA-approved estimated cost of the Work to be performed in accordance with this Permit.

- i. If at any time during the effective period of this Permit, a Permittee provides financial assurance for completion of the Work by means of a corporate guarantee or financial test pursuant to Permit Condition III.P.1.e or III.P.1.f above, the Permittee shall also comply with the other relevant requirements of 40 CFR § 264.143(f), 40 CFR § 264.151(f), and 40 CFR § 264.151(h)(1) relating to these methods, unless otherwise provided in this Permit, including but not limited to, (i) initial submission of required financial reports and statements from the guarantors' chief financial officer and independent certified public accountant; (ii) annual re-submission of such reports and statements within ninety (90) days after the close of each of the guarantors' fiscal years; and (iii) notification of the Director within ninety (90) days after the close of any of the guarantors' fiscal years in which any such guarantor no longer satisfies the financial test requirements set forth at 40 CFR Part 264.143(f)(1). If the Permittee provides financial assurance by means of a corporate guarantee or financial test, EPA may request additional information (including financial statements and accountant's reports) from the Permittee or corporate guarantor at any time.
- j. If a Permittee seeks to establish financial assurance by using a surety bond, a letter of credit, or a corporate guarantee, the Permittee shall at the same time establish, and thereafter maintain, a standby trust fund, which meets the requirements of Permit Condition III.P.1.a, into which funds from the other financial assurance instrument can be deposited, if the financial assurance provider is directed to do so by the Director, pursuant to Permit Condition III.P.5.b.
- k. The Permittee shall submit all original executed and/or otherwise finalized financial assurance instruments or other documents by certified mail to the Director with a copy to the EPA Project Manager identified in Permit Condition II.G.4.

III.P.2. Use of Multiple Mechanisms

At EPA's sole discretion, the Director may allow a Permittee to combine more than one mechanism to demonstrate financial assurance for the Work to be performed in accordance with this Permit, except that mechanisms guaranteeing performance rather than payment may not be combined with other instruments.

III.P.3. Determination of Inadequacy of Financial Instrument

If, at any time, the Director determines that a financial assurance instrument provided pursuant to this Permit is inadequate, or no longer satisfies the requirements set forth or incorporated by reference in this Permit, whether due to an increase in the most recent EPA-approved estimated cost of the Work or for any other reason, the Director shall so notify the Permittee in writing. If at any time, a Permittee becomes aware of information indicating that any financial assurance instrument provided pursuant to this Permit is inadequate or no longer satisfies the requirements set forth or incorporated by reference in this Permit, whether due to an increase in the estimated cost of the Work or for any other reason, then the Permittee shall notify the Director in writing of such

information within ten (10) days. Within thirty (30) days of receipt of notice of the Director's determination, or within thirty (30) days of the Permittee becoming aware of such information, as the case may be, the Permittee shall obtain and present to the Director for approval, a proposal for a revised or alternative form of financial assurance listed in Permit Condition III.P.1 above that satisfies all requirements set forth or incorporated by reference in this Permit. In seeking approval for a revised or alternative form of financial assurance, the Permittee shall follow the procedures set forth in Permit Condition III.P.8 below.

A Permittee's inability or failure to establish or maintain financial assurance for completion of the Work shall in no way excuse performance of any other requirements of this Permit, including, without limitation, the obligation of the Permittee to complete the Work in accordance with the terms of this Permit.

III.P.4. Instrument Renewal

Any and all financial assurance instruments provided pursuant to Permit Conditions III.P.1.a-e, shall be automatically renewed at the time of their expiration unless the financial assurance provider has notified both the Permittee and the EPA Project Manager identified in Permit Condition II.G.4 at least one hundred twenty (120) days prior to expiration, cancellation or termination of the instrument of a decision to cancel, terminate or not renew a financial assurance instrument. Under the terms of the financial assurance instrument, the one hundred twenty (120) days will begin to run with the date of receipt of the notice by both the EPA Project Manager identified in Permit Condition II.G.4 and the Permittee. Furthermore, if the Permittee has failed to provide alternate financial assurance and obtain the Director's written approval for such alternate financial assurance within ninety (90) days following receipt of such notice by both the Permittee and the EPA Project Manager, then the EPA Project Manager identified in Permit Condition II.G.4 will so notify the financial assurance provider in writing prior to the expiration of the instrument, and the financial assurance provider shall immediately deposit into the standby trust fund, or a newly created trust fund approved by the Director, the remaining funds obligated under the financial assurance instrument for the performance of the Work in accordance with this Permit.

III.P.5. Performance Failure

- a. In the event that the EPA determines that the Permittee (i) has ceased implementation of any portion of the Work, (ii) is deficient or late in its performance of the Work, or (iii) is implementing the Work in a manner that may cause an endangerment to human health or the environment, the EPA may issue a written notice ("Performance Failure Notice") to both the Permittee and the financial assurance provider of the Permittee's failure to perform. The notice issued by the EPA will specify the grounds upon which such a notice was issued and will provide the Permittee with a period of ten (10) days within which to remedy the circumstances giving rise to the issuance of such notice.
- b. Failure by the Permittee to remedy the relevant Performance Failure to the EPA's satisfaction before the expiration of the 10-day notice period specified in Permit Condition III.P.5.a shall trigger the EPA's right to have immediate access to and benefit of the financial assurance provided pursuant to Permit Condition III.P.1.a-e. The EPA

may at any time thereafter direct the financial assurance provider to immediately (i) deposit into the standby trust fund, or a newly created trust fund approved by the EPA, the remaining funds obligated under the financial assurance instrument or, (ii) arrange for performance of the Work in accordance with this Permit.

c. If the EPA has determined that any of the circumstances described in clauses (i), (ii), or (iii) of Permit Condition III.P.5.a have occurred, and if the EPA is nevertheless unable after reasonable efforts to secure the payment of funds or performance of the Work in accordance with this Permit from the financial assurance provider pursuant to this Permit, then, upon receiving written notice from the EPA, the Permittee shall within ten (10) days thereafter deposit into the standby trust fund, or a newly created trust fund approved by the EPA, in immediately available funds and without setoff, counterclaim, or condition of any kind, a cash amount equal to the estimated cost of the remaining Work to be performed in accordance with this Permit as of such date, as determined by the EPA.

d. The Permittee may invoke the procedures set forth in Permit Condition III.T. (Dispute Resolution) to dispute the EPA's determination that any of the circumstances described in clauses (i), (ii), or (iii) of Permit Condition III.P.5.a have occurred. Invoking the dispute resolution provisions shall not excuse, toll or suspend the obligation of the financial assurance provider, under Permit Condition III.P.5.b of this section, to fund the trust fund or perform the Work. Furthermore, notwithstanding the Permittee's invocation of such dispute resolution procedures, and during the pendency of any such dispute, the EPA may in its sole discretion direct the trustee of such trust fund to make payments from the trust fund to any person that has performed the Work in accordance with this Permit until the earlier of (i) the date that the Permittee remedies, to the EPA's satisfaction, the circumstances giving rise to the EPA's issuance of the relevant Performance Failure Notice or (ii) the date that a final decision is rendered in accordance with Permit Condition III.T (Dispute Resolution), that the Permittee has not failed to perform the Work in accordance with this Permit.

III.P.6. Reduction of Amount of Financial Assurance

Upon receipt by the Permittee of the Director's approval to reduce the estimated cost of the Work as allowed under Permit Condition III.O.4, the Permittee shall submit a written proposal to the Director to reduce the amount of the financial assurance provided under this Permit so that the amount of the financial assurance is equal to the Estimated Cost of the Work remaining to be performed. The written proposal shall be subject to review and approval pursuant to Permit Condition III.S. If EPA decides to accept such a proposal, the Director shall notify the Permittee of its decision in writing. After receiving the Director's written decision, the Permittee may reduce the amount of the financial assurance only in accordance with and to the extent permitted by such written decision. In the event of a dispute, the Permittee may reduce the amount of the financial assurance required hereunder only in accordance with the final EPA Dispute Decision, pursuant to Permit Condition III.T, resolving such dispute. No change to the form or terms of any financial assurance provided under this Section, other than a reduction in amount, is authorized except as provided in Permit Conditions III.P.8 and III.P.9.

III.P.7. Increase of Amount of Financial Assurance

Whenever the most current EPA-approved estimated cost of the Work exceeds the amount of financial assurances provided pursuant to this Permit, the Permittee shall revise the instrument(s) according to the requirements in this Permit Condition. The Permittee shall notify the Director in writing within fourteen (14) days of determining that the most current EPA-approved estimated cost of the Work exceeds the amount of financial assurances provided. The conditions in this Permit Condition shall apply upon such determination by the Permittee or the Director and shall apply when any of the following situations result in the estimated cost of the Work exceeding the amount of financial assurances provided: adjustment for inflation; additional costs resulting from a request by the Director for additional work under Permit Condition III.N; EPA approval of a work plan pursuant to this Permit; EPA selection of a corrective measures or interim measures; or inadequacy of current financial assurance instrument. Within thirty (30) days following such determination, the Permittee shall obtain and present to the Director for review and approval pursuant to Permit Condition III.S a revised form of financial assurance (and otherwise acceptable under this Permit Condition III.P) that covers the most current EPA-approved estimated cost of the Work. Within ten (10) days after the Director's approval of the revised financial assurance instrument(s), the Permittee shall execute or otherwise finalize all instruments or other documents required in order to make the selected financial assurance legally binding in a form substantially identical to the financial assurance documents reviewed and approved by the Director. The Permittee shall submit all original executed and/or otherwise finalized financial assurance instruments or other documents to the Director within thirty (30) days after the Director's approval of the revised financial assurance instruments.

III.P.8. Change of Form of Financial Assurance

- a. If the Permittee desires to change the form or terms of financial assurance, the Permittee may, at the same time that the Permittee submits the annual cost adjustment, pursuant to Permit Condition III.O.3 or at any other time agreed to by the Director, submit a written proposal to the Director to change the form of financial assurance. The submission of such proposed revised or alternative form of financial assurance shall be as provided in Permit Condition III.P.8.b below. The decision whether to approve a proposal submitted under this Permit Condition shall be made at the Director's sole and un-reviewable discretion and such decision shall not be subject to challenge by the Permittee pursuant to the dispute resolution provisions of this Permit or in any other forum.
- b. A written proposal for a revised or alternative form of financial assurance shall specify, at a minimum, the EPA-approved estimated cost of the Work remaining to be performed, the basis upon which such cost was calculated, and the proposed revised form of financial assurance, including all proposed instruments or other documents required in order to make the proposed financial assurance legally binding. The proposed revised or alternative form of financial assurance shall satisfy all requirements set forth or incorporated by reference in Permit Condition III.P. The Director shall notify the Permittee in writing of its decision to accept or reject a revised or alternative form of financial assurance submitted pursuant to this Permit Condition III.P.8. Within ten (10) days after receiving a written decision approving the proposed revised or

alternative financial assurance, the Permittee shall execute and/or otherwise finalize all instruments or other documents required in order to make the selected financial assurance legally binding in a form substantially identical to the documents submitted to the Director as part of the proposal, and such financial assurance shall be fully effective. The Permittee shall submit all executed and/or otherwise finalized instruments or other documents required in order to make the selected financial assurance legally binding to the Director within thirty (30) days of receiving a written decision approving the proposed revised or alternative financial assurance, with a copy to the EPA Project Manager identified in Permit Condition II.G.4. The Director shall release, cancel or terminate the prior existing financial assurance instruments only after the Permittee has submitted all original executed and/or otherwise finalized new financial assurance instruments or other required documents to the Director.

III.P.9. Release of Financial Assurance

The Permittee may submit a written request to the Director that EPA release the Permittee from the requirement to maintain financial assurance under this Permit when the Permittee demonstrates in writing and certifies to the satisfaction of the Director that all Work required under this Permit, including any additional work, has been performed to the Director's satisfaction in accordance with Permit Condition III. The Director shall notify both the Permittee and the provider(s) of the financial assurance in writing that the Permittee is released from all financial assurance obligations under this Permit. The Permittee shall not release, cancel or terminate any financial assurance provided pursuant to this Permit unless written approval for such release, cancellation or termination is received from the Director and as provided in this Permit Condition III.P.9 or Permit Condition III.P.8. In the event of a dispute pursuant to Permit Condition III.T, the Permittee may release, cancel, or terminate the financial assurance required hereunder only in accordance with a final administrative or judicial decision resolving such dispute.

III.Q. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS

The Permittee shall notify the Director by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the Permittee as debtor, within ten (10) days after commencement of the proceeding, in accordance with 40 CFR § 264.148. A guarantor or a corporate guarantee as specified in 40 CFR § 264.143(f) and 264.145(f) must make such a notification if he is named as debtor, as required under the terms of the corporate guarantee (40 CFR § 264.151(h)). A Permittee who fulfills the requirements of 40 CFR § 264.143 or 40 CFR § 264.147 by obtaining a trust fund, surety bond, letter of credit, or insurance policy will be deemed to be without the required financial assurance or liability coverage in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee or of the institution issuing the surety bond, letter of credit, or insurance policy to issue such instruments. The Permittee must establish other financial assurance or liability coverage within sixty (60) days after such an event.

III.R. QUARTERLY PROGRESS REPORTS

The EPA may require the Permittee to submit quarterly progress reports by providing written notice of the requirement. The Permittee shall submit a signed Quarterly Progress Report covering all activities within the current reporting period which are conducted pursuant to the corrective action provisions of Permit Condition III. Each Quarterly Progress Report shall be due thirty (30) days after the last day of each calendar quarter. The first quarter for which a Quarterly Progress Report is due is the first quarter in which the Director requires the Permittee to begin corrective action activities pursuant to Permit Condition III, including development of Work Plans. These Quarterly Progress Reports shall be submitted until such time that the activities pursuant to the corrective action provisions of Part II are complete as determined by the Director. The Director may change, reduce or discontinue reporting requirements if technical documentation demonstrates the change, reduction or cessation in reporting requirements will not impact operation and monitoring of remedial actions. If previously discontinued, the Director can, upon written request to Permittee, reinstitute the requirement for progress reports when new corrective action activities commence, or other activities require such reporting to the Director. The Progress Reports shall include the following information for the period being reported:

1. A description of all work completed in that period;
2. Summaries of all findings, including summaries of laboratory data;
3. Summaries of all problems or potential problems encountered during the reporting period and actions taken to rectify problems;
4. Deviations from the approved work plan(s), SAPs
5. Projected work for the next period and,
6. Any instances of noncompliance with Part II not otherwise required to be reported pursuant to Permit Conditions II.E.11 and II.E.16.

III.S. REVIEW AND APPROVAL PROCEDURES

1. After submission of any document, plan, or report, the Director will either approve or disapprove the document, plan, or report in writing.
2. If the Director disapproves the document, plan, or report, the Director will notify the Permittee in writing of the document, plan, or report's deficiencies, indicate required revisions, and specify a due date for submittal of a revised document, plan, or report.
3. If upon resubmission, the Director disapproves the revised document, plan, or report, the Permittee will be deemed to be in violation of this Permit until an approved document is in effect. In addition, the Director may modify the revised document, plan, or report and notify the Permittee of the modifications. The document, plan, or report as modified by the Director is the EPA-approved document, plan, or report, and shall become part of this Permit.
4. If the Permittee takes exception to the modifications made by the Director, the Permittee shall follow the dispute resolution procedures in Permit Condition III.T.

5. The Permittee shall implement all documents, plans, or reports according to the specifications and schedules contained in the EPA-approved document, plan, or report.
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III.T. DISPUTE RESOLUTION

1. If the Permittee disagrees, in whole or in part, with any EPA disapproval, conditional approval with comment, modification, or other decision or directive made by EPA pursuant to the corrective action provisions of Part II, the Permittee shall notify EPA in writing of its objections and bases for them within (10) days of receipt of EPA's disapproval, decision, or directive. The notice shall set forth specific points of the dispute, the position the Permittee maintains should be adopted as consistent with the requirements of this Permit, the factual and legal basis for the Permittee's position, and all matters the Permittee considers necessary for EPA's determination. EPA and the Permittee shall then have an additional twenty (20) days from EPA's receipt of the Permittee's objection to attempt to resolve the dispute. If agreement is reached, the resolution will be reduced to writing by EPA and shall become part of this Permit. If the parties are unable to reach complete agreement within this 20 day period, the matter will be submitted to the Director or his/her designee who has not been previously involved in consideration or issuance of this Permit for resolution. This resolution shall become part of this Permit.
2. The existence of a dispute as defined herein and EPA's consideration of such matters as placed in dispute shall not excuse, toll or suspend any obligation or deadline required pursuant to this Permit, that is not the subject of dispute, during pendency of the dispute resolution process.

IV. FACILITY-SPECIFIC CONDITIONS

RESERVED

V. FACILITY SUBMISSION SUMMARY

The following is a summary table and does not modify or change the complete written requirements of any Permit Condition.

SUBMITTAL	DUE DATE	TRIGGERING EVENT	PERMIT CONDITION
Permit Application	At least 180 days prior to	expiration	II.E.2
Information/Records	Within 30 days of	request	II.E.7
New Owner/Operator Certification	At least 90 days prior to	transfer	II.E.14.a
Revised Permit Application	At least 90 days prior to	transfer	II.E.14.d
Revised Permit Application	At least 90 days prior to	transfer	II.E.14.f
Other Information	Within 7 days of	occurrence	II.E.18
SWMU/AOC/Release Assessment Work Plan	Within 60 days of	notice	III.C.3
SWMU/AOC/Release Assessment Report	Schedule dates in Work Plan	schedule	III.C.4
Interim Measure/Stabilization Work Plan	Within 30 days of	notice	III.D.3
RFI Work Plan	Within 90 days of	request	III.E.2
RFI Report	Schedule in Work Plan	schedule	III.G.1
CMS Work Plan	Within 60 days of	notice	III.H.2
CMS Report	Schedule in Work Plan	schedule	III.J.1
CMI Work Plan	Within 60 days of	notice	III.L.1.a

SUBMITTAL	DUE DATE	TRIGGERING EVENT	PERMIT CONDITION
Groundwater Monitoring Plan	Within 60 days of	effective date	III.K.2.d.i
Corrective Measure Construction Report	Schedule in Work Plan	schedule	III.L.3
CMI Annual Report	March 1 of	year	III.L.4
CMI 5-year Review	Within 60 days of the 5-year	anniversary	III.L.5
Corrective Measure Completion Report	Within 90 days of	completion	III.L.6
Additional Work	Within 60 days of	notice	III.N
Cost Estimate	Within 30 days after	approval	III.O.1
Revised Cost Estimate	Within 30 days of	new requirement	III.O.2
Adjusted Cost Estimate	Within 30 days of	anniversary	III.O.3
Draft Financial Assurance	Within 30 days of	approval	III.P
Executed Financial Assurance	Within 30 days of	approval	III.P
Revised Financial Assurance	Within 30 days of	notice	III.P.1.g
Financial Report	Within 90 days of	end of fiscal year	III.P.1.h
Revised or Alternative Financial Assurance	Within 30 days of	notice	III.P.3
Deposit of Funds	Within 10 days of	notice	III.P.5.c
Draft Revised or Alternative Financial Assurance	Within 30 days of	notice	III.P.7

SUBMITTAL	DUE DATE	TRIGGERING EVENT	PERMIT CONDITION
Revised or Alternative Financial Assurance	Within 30 days of	approval	III.P.7
Revised or Alternative Financial Assurance	Within 30 days of	approval	III.P.8.b
Revised or Alternative Financial Assurance	Within 60 days of	incapacity	III.Q
Quarterly Progress Reports	Within 30 days of	quarter	III.R

VI. FACILITY REPORTING SUMMARY

The following is a summary table and does not modify or change the complete written requirements of any Permit Condition.

SUBMITTAL	DUE DATE	TRIGGERING EVENT	PERMIT CONDITION
Notice of Planned Changes	At least 30 days prior to	alteration or addition	II.E.10
Notice of Anticipated Noncompliance	At least 30 days prior to	noncompliance	II.E.11
Notice of Compliance/Noncompliance	Within 14 days of	completion date	II.E.13
Oral Report of Noncompliance	Within 24 hours of	occurrence	II.E.15.a
Report of Noncompliance	Within 5 days of	circumstance	II.E.15.c
Report of Other Noncompliance	Within 30 days of	noncompliance	II.E.16
Notice of Newly-Identified SWMUs, AOCs & Releases	Within 15 days after	discovery	III.C.1
Notice of Interim Measure/Stabilization	Within 24 hours of	discovery	III.D.2
Notice of Interim Measure/Stabilization Not Effective	Within 10 days of	determination	III.D.4
Notice of RFI field activity	At least 30 days prior to	activity	III.F.1
Notice of CMS field activity	At least 30 days prior to	activity	III.I.2
Notice of CMI field activity	At least 30 days prior to	activity	III.L.2.b
Notice of Cancellation, Termination or Failure to Renew	At least 120 days prior to	cancellation, termination	III.P.1.d
Notice of Financial Condition	Within 90 days of	end of fiscal year	III.P.1.i

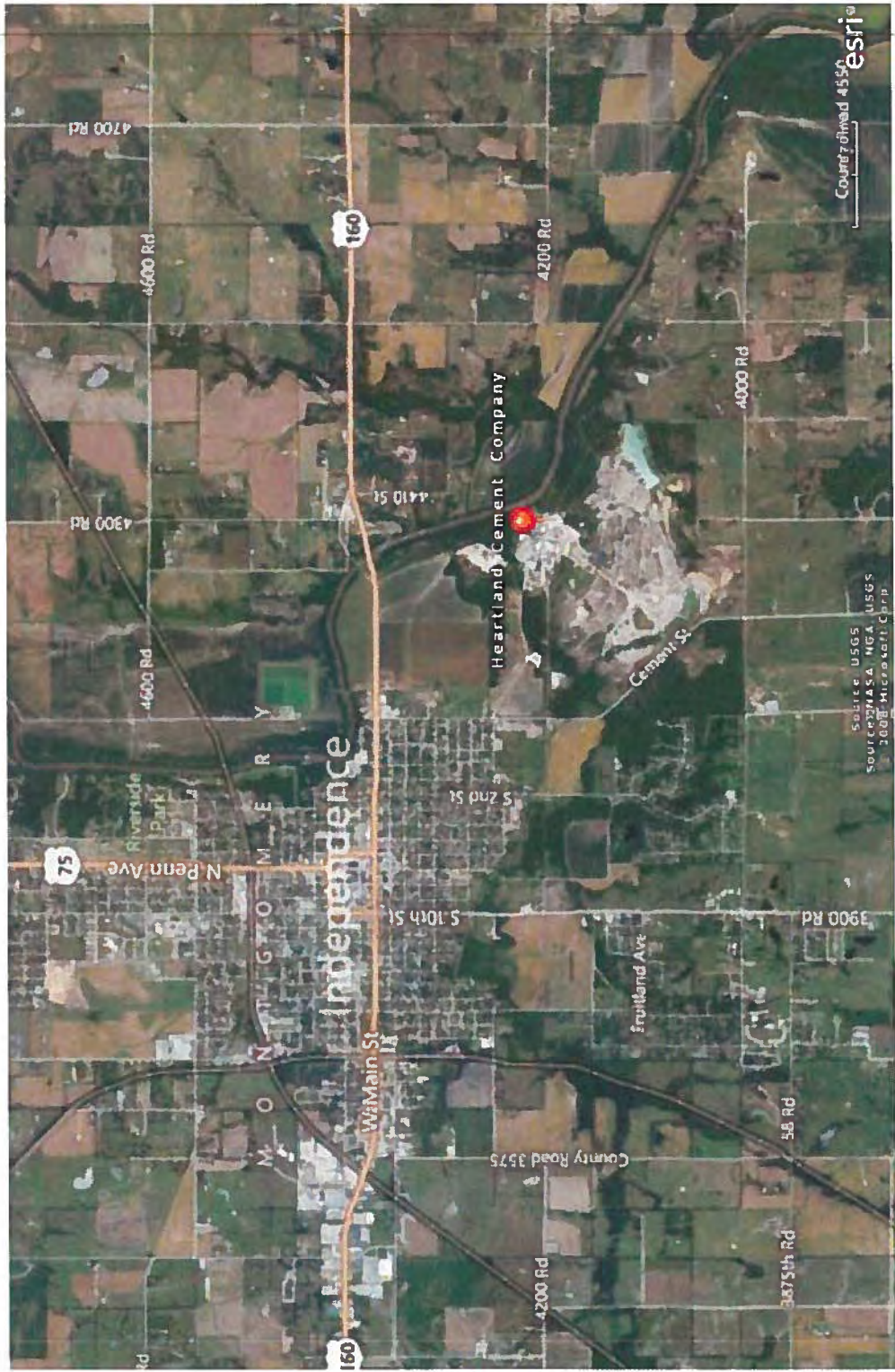
SUBMITTAL	DUE DATE	TRIGGERING EVENT	PERMIT CONDITION
Notice of Inadequate Financial Assurance	Within 10 days of	determination	III.P.3
Notice of Non-Renewal	At least 120 days prior to	non-renewal, cancellation, termination	III.P.4
Notice of Inadequate Cost Estimate	Within 14 days of	determination	III.P.7
Notice of Bankruptcy	Within 10 days of	commencement	III.Q

VII. FACILITY COMPLIANCE SCHEDULE SUMMARY

The following is a summary table and does not modify or change the complete written requirements of any Permit Condition.

Submittal	DUE DATE	TRIGGERING EVENT	PERMIT CONDITION
SWMU Map/Class 1 Modification	Within 30 days of	effective date	III.B.2
New SWMUs/Class 1 Modification	Within 10 days of	notice	III.B.3
Engineering Controls/Class 1 Modification	Within 10 days of	notice	III.K.2.a.i
Groundwater Monitoring Plan/Class 1 Modification	Within 90 days of	effective date	III.K.2.d

Permit Attachment 1 – Facility Location and Layout



Copyright 2010 Esri

Source: USGS
Source: NASA, NGA, USGS
© 2009 Microsoft Corp.



Old CKD LF

Heartland RCRA Facility

New CKD LF

C&D LF

LEGEND

○

●

△

(GLO)

(M)

(D)

(P)

R/W

Existing Iron Rod

Origin Unknown (unless noted)

Set 1/2"x24" Iron Rod/Cap

(unless otherwise noted)

Section Corner

Per Previous Surveys

(unless noted)

Boundary Line

Fence line

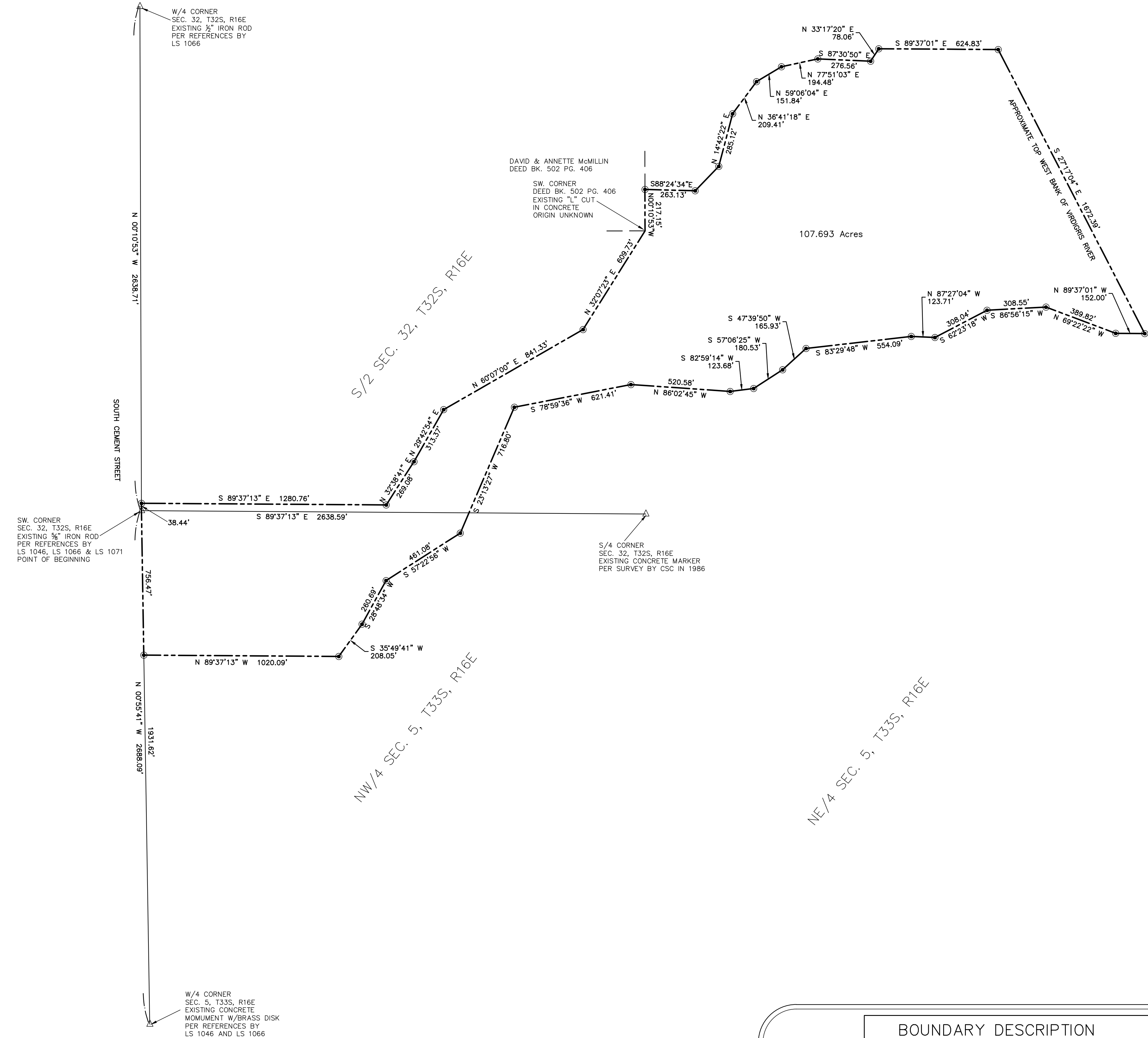
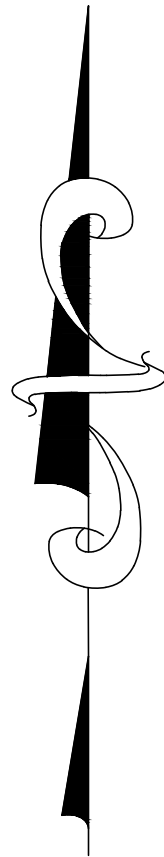
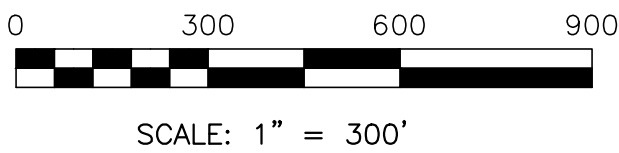
General Land Office

Measured Dimension

Deed Dimension

Plat Dimension

Right of Way



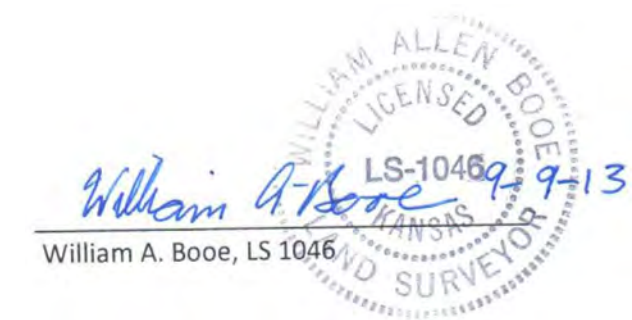
SURVEY REVIEW

This survey has been reviewed and approved for filing, pursuant to K.S.A. 58-2005 for content only and is in compliance with this Act. No other warranties are extended or implied.

James D. Schmitz, PLS No. 727

SURVEYOR'S CERTIFICATION

I, William A. Boone, a duly licensed Land Surveyor in the State of Kansas, do hereby certify that this plat was prepared from the notes of an actual on the ground field survey done by me or under my direct supervision on August 21, 2013 and that the information shown hereon is true and correct and meets or exceeds current Kansas Minimum Standards for Boundary Surveys.



SURVEYOR'S NOTES

- The bearings shown hereon are based upon the Kansas State Plane Coordinate System, South Zone.
- This survey does not reflect any easements, rights-of-way, or other instruments of record which may encumber this property per agreement with client.
- Underground, above ground utilities, nor improvements were located or shown on this survey.
- All distances are measured unless otherwise noted.

BOUNDARY DESCRIPTION

(Written by William A. Boone, LS 1046, August 22, 2013)

A tract of land located in a portion of the South Half of Section 32, Township 32 South, Range 16 East and a portion of the Northwest Quarter of Section 5, Township 33 South, Range 16 East of the 6th Principal Meridian, Montgomery County, Kansas, being more particularly described as follows:

Beginning at the Southwest corner of said Section 32; thence N 00°10'53" W, along the West line of the Southwest Quarter of Section 32, a distance of 38.44 feet; thence S 89°37'13" E, parallel with the South line of the Southwest Quarter of the Southwest Quarter of Section 32, a distance of 1280.76 feet; thence N 32°38'41" E, a distance of 269.08 feet; thence N 29°42'54" E, a distance of 313.37 feet; thence N 60°07'00" E, a distance of 841.33 feet; thence N 32°07'23" E, a distance of 609.73 feet to the Southeast corner of a tract of land described in Deed Book 502 at Page 406; thence N 00°10'53" W, along the East line of said tract, a distance of 217.15 feet; thence S 88°24'34" E, a distance of 263.13 feet; thence N 44°03'22" E, a distance of 177.51 feet; thence N 14°42'22" E, a distance of 285.12 feet; thence N 36°41'18" E, a distance of 209.41 feet; thence N 59°06'04" E, a distance of 151.84 feet; thence N 77°51'03" E, a distance of 194.48 feet; thence S 87°30'50" E, a distance of 276.56 feet; thence N 33°17'20" E, a distance of 78.06 feet; thence S 89°37'01" E, a distance of 624.83 feet to the West bank of the river; thence S 27°17'04" E, along said West bank, a distance of 1672.39 feet; thence N 89°37'00" W, a distance of 152.00 feet; thence N 69°22'22" W, a distance of 389.82 feet; thence S 86°56'15" W, a distance of 308.55 feet; thence S 62°23'18" W, a distance of 308.04 feet; thence N 87°27'04" W, a distance of 123.71 feet; thence S 83°29'48" W, a distance of 554.09 feet; thence S 47°39'50" W, a distance of 165.93 feet; thence S 57°06'25" W, a distance of 180.53 feet; thence S 82°59'14" W, a distance of 123.68 feet; thence N 86°02'45" W, a distance of 520.58 feet; thence S 78°59'36" W, a distance of 621.41 feet; thence S 57°22'56" W, a distance of 461.08 feet; thence S 28°48'34" W, a distance of 260.69 feet; thence S 35°49'41" W, a distance of 208.05 feet; thence N 89°37'13" W, a distance of 1020.09 feet to the West line of the Northwest Quarter of Section 5; thence N 00°55'41" W, along said West line, a distance of 756.47 feet to the Point of Beginning. Containing 107.693 acres, including those portions used for county road right-of-way purposes.

CORNERSTONE REGIONAL SURVEYING, L.L.C.

1921 N. Penn
Independence, KS 67301
Ph: 620-331-6767
Fax: 620-331-6776

DRAWN BY:
DLB

CHECKED BY:
WAB

DATE:
9-9-2013

REVISION DATE:
N/A

JOB NO.
1-1306191-K

REFERENCE JOB NO.
1-0902046-K

PREPARED FOR:

BUZZI UNICEM

BOUNDARY SURVEY of a portion of
SECTION 32, T32S, R16E &
SECTION 5, T33S, R16E
MONTGOMERY COUNTY, KANSAS

Permit Attachment 2 – Solid Waste Management Units





● SOLID WASTE MANAGEMENT UNITS
● AREAS OF CONCERN

— DITCH SEWER SYSTEM

HEARTLAND CEMENT COMPANY
BUZZI UNICEM USA
INDEPENDENCE, KANSAS

Permit Attachment 3 – Corrective Measures Decision

RESPONSE TO COMMENTS AND CORRECTIVE MEASURES DECISION

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 7

Heartland Cement Company, d.b.a. Buzzi Unicem USA
1765 Limestone Lane, Independence, Kansas
RCRA ID# KSD980739999

Facility Type:	Portland Cement Manufacturing
Contaminants:	Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Metals
Media:	Soil and Groundwater
Remedy:	Engineering Controls, Operation & Maintenance, Institutional Controls, Groundwater Monitoring

INTRODUCTION: The cleanup of hazardous waste facilities, known as corrective action, is of great importance to citizens and the local communities in which they live. United States Environmental Protection Agency (hereafter referred to as “EPA”) is required to provide the public notice, opportunity to comment on the proposed plan for the clean up and to review and respond to comments before final decisions are made. Public participation provides an opportunity for the public to express its views and allows the Agency to give due consideration to the public's concerns.

FACILITY DESCRIPTION: Western States Portland Cement Company began manufacturing cement at the Heartland location in the 1890's. Ownership and operations have changed over time with the facility most recently owned by the Heartland Cement Company (Heartland). Production of Portland cement ceased at the facility in 2008. Heartland has been dismantling manufacturing equipment, structures and other items at the facility since 2008.

Heartland received a RCRA hazardous waste management permit for storage and blending of hazardous waste into a fuel stock to be burned in the cement kilns in 1989. The RCRA permit was later expanded to include increased capacity and capability for fuel blending. Heartland ceased hazardous waste management in 2001 and completed closure of the hazardous waste management facilities and equipment in 2002.

Heartland's RCRA permit required a RCRA Facility Investigation (RFI)¹ of 8 solid waste management units identified in EPA's RCRA Facility Assessment (RFA).²

PUBLIC PARTICIPATION: The EPA prepared a Statement of Basis to propose corrective measures for non-residential use of Heartland's facility at 1765 Limestone Lane, Independence, Kansas. The corrective measures include engineering and institutional controls to protect human health and the environment.

¹ A RFI investigates and characterizes releases of hazardous constituents.

² A RFA is prepared to identify solid waste management units and areas of concern and possible releases of hazardous constituents. See RFA dated March 1989.

Public participation activities for the Statement of Basis were conducted in conjunction with the draft RCRA permit and were in accordance with 40 CFR Part 124. The Administrative Record for EPA's draft permit was available throughout the comment period at the Independence Public Library, Independence, KS, and at EPA Region 7.

The public comment period was from April 24, 2013 through June 8, 2013. Notice of the public comment period was provided to the public as follows:

- Fact Sheet mailed to 335 residents/businesses (within approximately 1 mile of the facility), city, county, and state officials
- Public notice display ad in the *Independence Daily Reporter*
- Radio announcement broadcast on KIND-FM at 7:22a.m. and 8:22a.m

RESPONSE TO COMMENTS:

EPA did not receive any written requests for a public hearing.

EPA did not receive any written comments for either the statement of basis or draft permit.

EPA is finalizing the corrective measures proposed in the Statement of Basis.

EPA is issuing the RCRA Permit.

DECLARATION OF FINAL CORRECTIVE MEASURES DECISION:

The site-wide corrective measures are:

Engineering Controls: The EPA defines engineering controls as "Physical technologies implemented to minimize the potential for human exposure to contamination by means of control or remediation." Chemical removal, barrier fencing, underground clay barriers and landfill caps are examples of engineering controls.

- Closure of Industrial Landfill and Kiln Dust Landfills with low permeable cap and a vegetative protective layer.
- Soil removal conducted previously as Interim Measure at Frog Pond and Heavy Crude Tank
- Soil removal previously conducted to close Three Settling Ponds.

Institutional Controls: Institutional controls (ICs) are non-engineered measures intended to affect human activities in such a way as to prevent or reduce exposure to hazardous substances. IC's fall into four categories: government controls; proprietary controls (controls based on private property law); enforcement agreements with governmental agencies; and informational devices (informational tools that provide information or notification that residual or capped contamination may remain onsite). ICs are meant to be used in conjunction with engineering controls as another layer of protection against human exposure to hazardous materials.

The *Institutional Controls* corrective measure for Heartland prohibits non-industrial uses of any part of Industrial Landfill and Kiln Dust Landfill and will ensure that the low permeable cap used to contain the wastes will not be compromised from construction at the facility. EPA is establishing the requirement for institutional controls in Heartland's RCRA hazardous waste management permit to limit activities at the facility to non-residential uses, restrict activities that may compromise the Industrial Landfill and Kiln Dust Landfill cap and to provide access to EPA.

Long-Term Maintenance, Monitoring and Reporting: Long-term monitoring and maintenance is a required adjunct to engineering controls and institutional controls corrective measures. Inspection, maintenance and repairs of the cap and fencing installed for the Industrial Landfill and Kiln Dust Landfill are necessary to ensure their effectiveness in the containment of wastes disposed in the landfills. Review of the institutional controls is necessary to ensure they remain effective and enforceable in order to prevent damage to the cap and to restrict residential uses of the facility. Heartland shall conduct the following activities in accordance with work plans to be submitted and approved under the RCRA hazardous waste management permit:

- Post-closure monitoring and maintenance of Industrial Landfill and Kiln Dust Landfill low permeable caps.
- Ground water monitoring at Kiln Dust Landfills.
- Ground Water Remediation Goals:

Arsenic 0.01 parts per million

NO FURTHER ACTION DETERMINATIONS: The EPA has determined that No Further Action is necessary at the following SWMUs either because investigations were not necessary based on the RCRA Facility Assessment, investigations completed in the RCRA Facility Investigation determined contaminants are below levels for unrestricted use or Interim Measures were conducted to remove contaminants below levels for unrestricted use:

SWMU/AOC	Description
SWMU 1	Used Oil Storage Area/Vehicle Maintenance Building
SWMU 2	Grease Interceptor Sump
SWMU 3	Three Settling Ponds
SWMU 4	Former Waste Fuel System
SWMU 5	Process Sewers
SWMU 6	Used Kerosene Drum
SWMU 7	Empty Drum Storage Area
SWMU 8	Machine Shop Parts Cleaning Area
SMWU 9	Electric Shop Parts Cleaning Area
SWMU 12	Raw Material Settling Ponds
SWMU 13	Former Heavy Crude Fuel Storage Tank
SWMU 14	Refractory Brick Storage Area
SWMU 15	Water Treatment System
SWMU 16	Closed Hazardous Waste Management Units
SWMU 17	Old disposal area discovered during demolition
SWMU 18	Frog Pond
AOC A	Outside Coal Storage Area
AOC B	Junkyard
AOC C	Outside Raw Material/Alternative Material Storage
AOC D	Outside Clinker Storage

FINAL DECLARATIONS: Based upon the administrative record compiled for this corrective action, I have determined that the selected corrective measures to be implemented for non-residential uses of Heartland are appropriate and will be protective of human health and the environment.

Done at Kansas City, Kansas, this 15th day of ~~August~~, 2013.



Becky Weber
Director
Air and Waste Management Division



Permit Attachment 4 – Ground Water Monitoring Plan

**GROUNDWATER MONITORING PLAN
SWMU 11
(KILN DUST LANDFILLS A & B)**

**HEARTLAND CEMENT COMPANY
dba BUZZI UNICEM USA
INDEPENDENCE, KANSAS**

SEPTEMBER 2013

Prepared for:

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 7
AIR AND WASTE MANAGEMENT DIVISION
LENEXA, KANSAS**

Project No. 130150



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1.0 INTRODUCTION

Heartland Cement Company, dba Buzzi Unicem USA (Heartland), has prepared this Groundwater Monitoring Plan for Solid Waste Management Unit (SWMU) 11 – Kiln Dust Landfills A & B (aka Old and New CKD Landfills) in accordance with United States Environmental Protection Agency (USEPA) Section III.K.2.d.i Monitoring and Performance Evaluation, as required in Heartland’s recently approved USEPA RCRA/HSWA permit dated July 18, 2013.

Permit condition III.K.2.d.i requires that Heartland submit a Groundwater Monitoring Plan for SWMU 11 and that the Groundwater Monitoring Plan shall include the following:

- Design Plans and Specifications;
- Operation and Maintenance Plan;
- Cost Estimate;
- Sampling and Analysis Plan;
- Quality Assurance Project Plan;
- Recordkeeping Plan;
- Waste Management Plan; and,
- Project Schedule, including provisions for thirty (30) days written advance notice of any field work.

The purpose of the SWMU 11 Groundwater Monitoring Plan is to describe the sampling and analysis procedures such that monitoring results will provide a reliable indication of groundwater quality in the zone(s) being monitored.

2.0 SITE DESCRIPTION AND BACKGROUND

2.1 Location

The Heartland property comprises approximately eleven hundred (1,100) acres located in a rural agricultural area of Montgomery County in southeastern Kansas. The Heartland

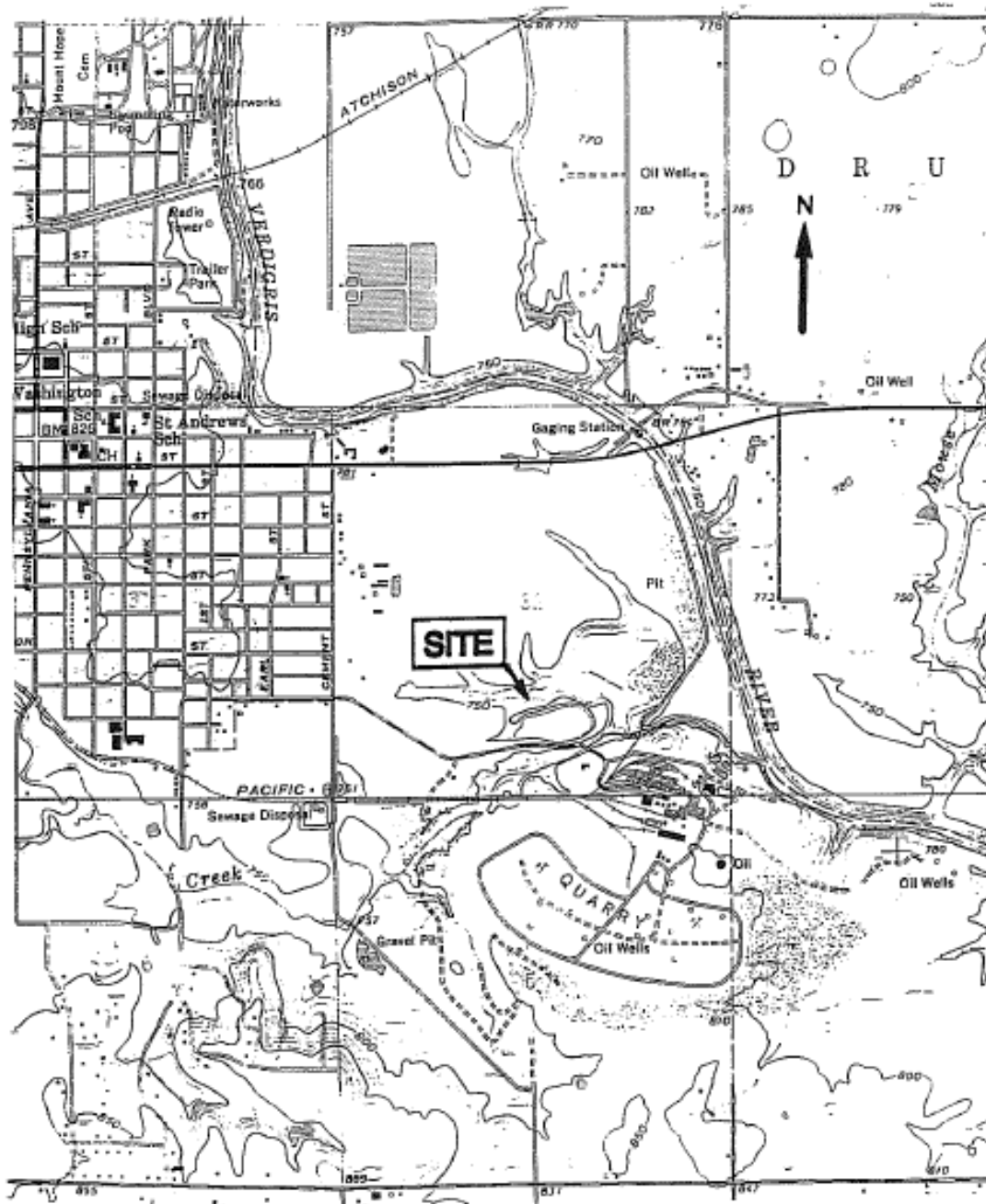


property adjoins the southeast corner of the City of Independence. The Verdigris River borders the property to the northeast and east, and some scattered residences are located approximately one-half (0.5) mile southwest of the plant property. Rock Creek, a tributary of the Verdigris River, flows easterly through the Heartland property. The location of the Heartland facility affected by the RCRA permit lies within this property boundary and is provided on Figure 1. The Verdigris River borders the east portion of the facility, and County Road 4100 borders the west portion of the facility. Rock Creek is located to the south of the facility, and farm fields lie to the north. The facility area contains SWMU 11 and SWMU 10 and is approximately 107.7 acres.

SWMU 11 consists of two cement kiln dust (CKD) landfills identified as the Old CKD Landfill and the New CKD Landfill. The Old CKD Landfill is located approximately 500 feet north of the former Heartland plant, adjacent to a rail spur that terminated at the southern end of the landfill limit. The landfill is an irregularly shaped area of generally homogeneous CKD deposits. The Old CKD Landfill comprises approximately 16.8 acres. The location of the Old CKD Landfill is presented in Figure 2.

The New CKD Landfill is located approximately 700 feet west of the plant, adjacent to the facility entrance road. The landfill is an irregularly shaped area consisting of generally homogeneous CKD deposits. The New CKD Landfill comprises approximately 6.4 acres. The location of the New CKD Landfill is presented in Figure 2.





Source: Independence, Kansas; 7.5 Minute Topographic Map

SITE LOCATION MAP				FIGURE 1
HEARTLAND CEMENT COMPANY				SCALE:
INDEPENDENCE, KANSAS				
CHECKED BY:	DRAWN BY:	DATE DRAWN:	DRAWING BY:	REVISION:
	ARS	10/7/99	SITLOC	

**SCHREIBER
& YONLEY
ASSOCIATES**
ENVIRONMENTAL ENGINEERS

Figure 1: Site Location Map





FIGURE 2
SWMU 11 LOCATION MAP
HEARTLAND CEMENT COMPANY
dba BUZZI UNICEM, USA
INDEPENDENCE, KANSAS



2.2 Facility Description/Background

The original cement plant began operations in 1905. The location for the plant was chosen due to the availability of limestone for use as a raw material. Cement operations at the site included quarrying, raw material preparation, cement production, and cement storage/shipping facilities. Quarry and cement production activities were terminated at the Heartland plant in September 2008.

At the time that Heartland utilized hazardous waste-derived fuels for burning during their manufacturing process, they were required to obtain a Part B RCRA permit in order to store these fuels. The permit included a provision to conduct a RCRA Facility Investigation (RFI) and ensure that corrective actions are taken in response to releases from Heartland SWMUs or when releases are suspected. The waste fuel operations at the facility were discontinued in 2000, and clean closure was completed in 2001.

Numerous RFI and follow up activities have taken place at SWMU 11 since 1991 through the present, including the installation and sampling of groundwater monitoring wells at both the Old CKD Landfill area and the New CKD Landfill area. Based on information obtained from the RFIs and groundwater assessment activities, several metals may be leaching from the Old CKD Landfill into the shallow alluvial groundwater within close proximity to the Old CKD Landfill.

These constituents of concern appear to be contained within Heartland's property boundary and pose little health risk to potential downgradient receptors. The closest downgradient domestic well is over one (1) mile away, and is separated from Heartland by the Verdigris River. Bedrock groundwater does not appear to be impacted with excessive levels of constituents of concern because it is confined within a tight, massive shale, and it is not hydraulically connected to the alluvial aquifer. Rock Creek also does not appear to be impacted.



On July 18, 2013, the USEPA issued Heartland a new RCRA/HSWA permit that identified corrective action provisions pertaining to known SWMUs and Areas of Concern (AOCs) at the Heartland facility. Section III.K.2.d.i of the permit requires the development of a groundwater monitoring plan such that Heartland can monitor the effectiveness and performance of the corrective measures and determine any failures of the corrective measures. This Plan addresses groundwater monitoring for SWMU 11 (CKD Landfills) only. The corrective measure selected for this unit includes engineering control specified in III.K.2.a. Capping of the landfill was completed in December 2012, and closure certification was received from Kansas Department of Health in July 2013.

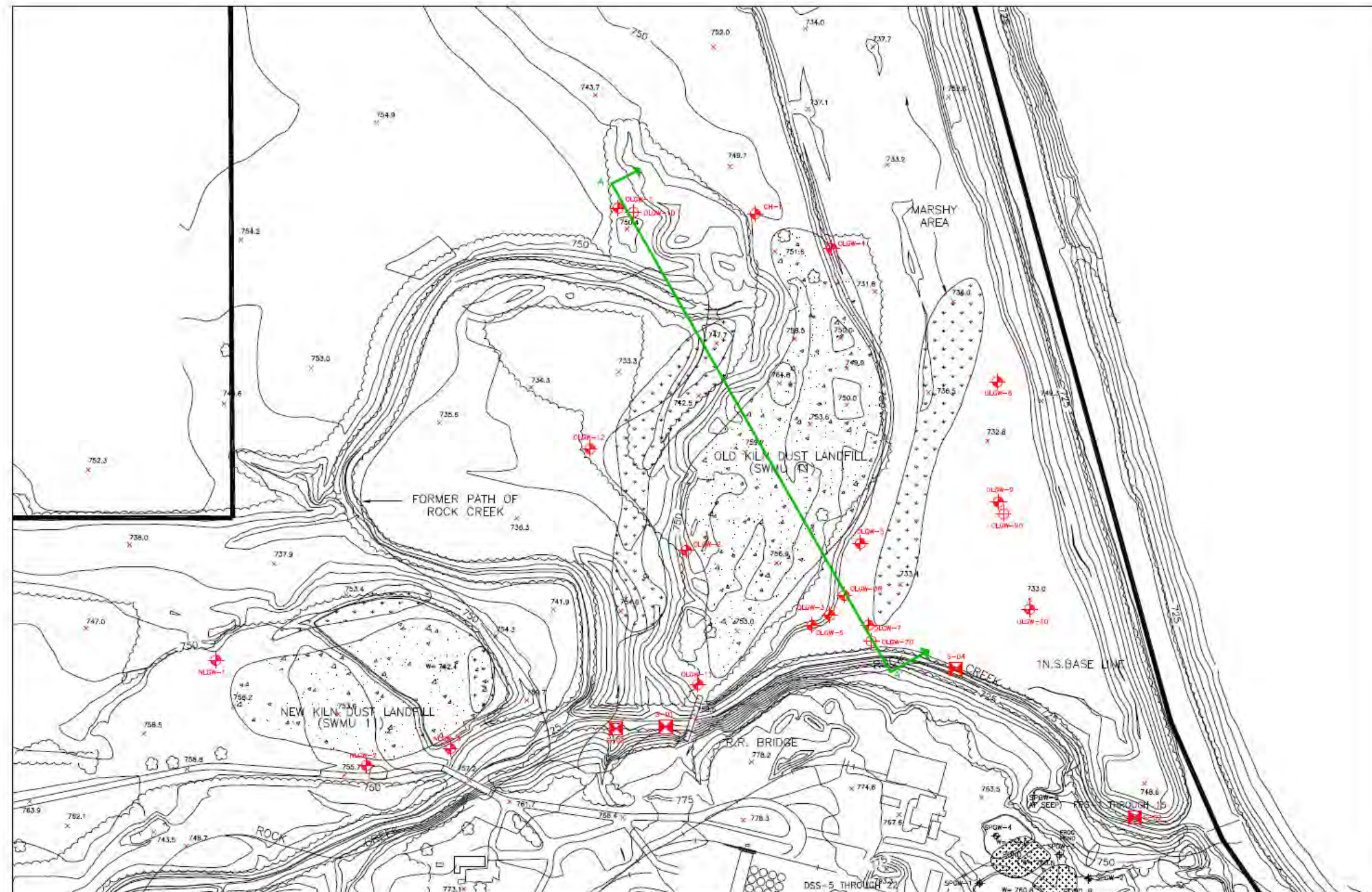
3.0 DESIGN PLANS AND SPECIFICATIONS

Heartland currently has two groundwater monitoring systems in place at SWMU 11. One system monitors groundwater from the Old CKD Landfill, while the other monitors groundwater from the New CKD Landfill. The following sections describe the groundwater monitoring systems currently in place at each CKD landfill.

3.1 Old CKD Landfill Groundwater Monitoring System

The groundwater monitoring system at the Old CKD Landfill consists of twelve (12) alluvial monitoring wells identified as OLGW-1 through OLGW-12, and three (3) bedrock monitoring wells identified as OLGW-1D, OLGW-7D, and OLGW-9D. Table 1 presents monitoring well construction details, while boring logs and monitoring well completion diagrams are contained in Appendix A. The locations of the alluvial and bedrock monitoring wells for the Old CKD Landfill are presented in Figure 3.





- APPROXIMATE MONITORING WELL / COREHOLE LOCATION
- APPROXIMATE BEDROCK MONITORING WELL LOCATION
- SEDIMENT AND SURFACE WATER SAMPLING LOCATIONS
- LINE OF CROSS SECTION

MONITORING WELL AND SAMPLING LOCATION MAP				FIGURE 3	
HEARTLAND CEMENT COMPANY D/B/A BUZZI UNICEM, USA INDEPENDENCE, KANSAS				APPROXIMATE SCALE 1" = 300'	
CHECKED BY:	DRAWN BY:	DATE DRAWN:	DRAWING #:	REVISION:	
DIA	WKS/BAH	03-19-09	130150	9-6-13	

**SCHREIBER
& YONLEY
ASSOCIATES**
ENVIRONMENTAL ENGINEERS



Table 1: Monitoring Well Construction – Old CKD Landfill

Well ID	Date of Construction	Screen Material	Well Diameter (inches)	Well Depth	Top of Screen	Top of Sand	Top of Bentonite	Top of Grout	Top of Casing	Top of Casing Elev. (msl)
				Feet below (-) or above (+) ground surface						
OLGW-1	1/23/1993	Stainless Steel	2	-28	-18	-16	-15	0	+3	755.34
OLGW-2	1/23/1993	Stainless Steel	2	-25	-15	-13	-12	0	+3	748.21
OLGW-3	1/23/1993	Stainless Steel	2	-34.5	-24.5	-22.6	-21.5	0	+3	755.44
OLGW-4	3/24/2004	Sch. 40 PVC	2	-34	-24	-22	-20	0	+3	755.77
OLGW-5	5/25/2004	Sch. 40 PVC	2	-30	-20	-18	-16	0	+3	754.29
OLGW-6	5/25/2004	Sch. 40 PVC	2	-30	-20	-18	-16	0	+3	756.07
OLGW-7	5/25/2004	Sch. 40 PVC	2	-30	-20	-18	-16	0	+3	737.12
OLGW-8	2/24/2009	Sch. 40 PVC	2	-22	-7	-5	-1	0	+3	742.69
OLGW-9	2/24/2009	Sch. 40 PVC	2	-22	-7	-5	-1	0	+3	742.38
OLGW-10	2/24/2009	Sch. 40 PVC	2	-19.5	-4.5	-2.5	-0.5	0	+3	742.37
OLGW-11	2/24/2009	Sch. 40 PVC	2	-38	-23	-21	-1	0	+3	759.80
OLGW-12	2/25/2009	Sch. 40 PVC	2	-20	-5	-3	-0.5	0	+3	744.07
OLGW-1D	3/3/2009	Sch. 40 PVC	2	-100	-85	-75	-1	0	+3	756.18
OLGW-7D	3/5/2009	Sch. 40 PVC	2	-80	-65	-55	-50	0	+3	739.72
OLGW-9D	3/5/2009	Sch. 40 PVC	2	-80	-65	-50	-40	0	+3	741.53

Upon review of the current groundwater monitoring system at the Old CKD Landfill and an evaluation of previously collected groundwater data from this monitoring system, Heartland is recommending that groundwater elevation data be collected from each well identified in Table 2, and the monitoring wells selected for sampling be included for groundwater sample collection activities. The identified monitoring wells for sampling were selected as they should provide the most reliable indication of actual groundwater quality both upgradient and downgradient of the Old CKD Landfill. Heartland is also recommending that monitoring well OLGW-2 be abandoned. Monitoring well OLGW-2 was originally installed to serve as an upgradient monitoring well for the alluvial aquifer. However, this well was actually placed within, the Old CKD Landfill footprint. Due to its placement, groundwater results indicate relatively high leachate constituent sample concentrations that are not typical of background conditions. Heartland believes that it is more appropriate to consider monitoring well OLGW-12 as a replacement of OLGW-2 to monitor upgradient conditions relative to the Old CKD Landfill.



Table 2: Monitoring Well Sampling – Old CKD Landfill

Well ID	GW Elevation Data	Sample Well
OLGW-1	X	X
OLGW-4	X	
OLGW-8	X	X
OLGW- 10	X	X
OLGW- 11	X	
OLGW- 12	X	X

3.2 New CKD Landfill Groundwater Monitoring System

The groundwater monitoring system at the New CKD Landfill consists of three (3) alluvial monitoring wells identified as NLGW-1, NLGW-2, and NLGW-3. Table 3 presents monitoring well construction details, while boring logs and monitoring well completion diagrams are contained in Appendix A. The locations of the alluvial monitoring wells for the New CKD Landfill are presented in Figure 3.

Table 3: Monitoring Well Construction – New CKD Landfill

Well ID	Date of Construction	Screen Material	Well Diameter (inches)	Well Depth	Top of Screen	Top of Sand	Top of Bentonite	Top of Grout	Top of Casing	Top of Casing Elev. (msl)
				Feet below (-) or above (+) ground surface						
NLGW-1	1/22/1993	Stainless Steel	2	-25	-15	-13	-12	0	+3	754.21
NLGW-2	1/21/1993	Stainless Steel	2	-35	-20.5	-18	-16	0	+3	761.58
NLGW-3	10/7/2003	Stainless Steel	2	-30	-20	-18	-16	0	+3	758.88

Heartland is recommending that groundwater elevation data and groundwater samples be collected from the groundwater monitoring wells identified in Table 3.

4.0 MONITORING WELL INSPECTION AND MAINTENANCE PROGRAM

Monitoring wells are designed to maintain the integrity of the borehole, minimize the introduction of extraneous materials, provide representative groundwater samples from the monitored groundwater interval, minimize maintenance, and prevent the entry of surface water into the annular space of the well.



Heartland will conduct an inspection of all monitoring wells associated with the SWMU 11 groundwater monitoring program during each sampling event to ensure the structural integrity of all wells. The inspection will occur immediately prior to monitoring well purging and sampling activities and will consist of a visual evaluation of each monitoring well for the items present on the Monitoring Well Inspection Log contained in Appendix B.

If a groundwater monitoring well cannot function as intended, or if the monitoring well is damaged beyond repair, Heartland will notify the USEPA within ten (10) days of discovery. If possible, the monitoring well will be repaired. If the well cannot be repaired, it will be properly abandoned and replaced within sixty (60) days of notification, unless the USEPA notifies Heartland otherwise in writing. Heartland will notify the USEPA a minimum of ten (10) days prior to undertaking well abandonment, and will submit documentation for each monitoring well abandoned to the USEPA within thirty (30) days of removal.

In order to provide security to the sampling point and to maximize the potential that representative data are collected from the monitoring well, all groundwater monitoring wells will be vented, capped, and locked when they are not being sampled. Groundwater monitoring wells will be clearly labeled and visible throughout the year.

5.0 SAMPLING AND ANALYSIS PLAN

5.1 Monitoring Locations

Groundwater samples will be collected from the two groundwater monitoring systems in place at SWMU 11 as described in Sections 3.1 and 3.2. It should be noted that monitoring well OLGW-2 has been recommended to be abandoned.

5.2 Sampling Schedule

Groundwater samples will be collected from the monitoring wells identified in Tables 2 and 3 on a semi-annual basis during the months of May and November. The facility may



request a change to the sampling frequency following completion of four (4) rounds of groundwater quality data. Justification for a reduction of frequency, if appropriate, will be provided to the USEPA at that time. Criteria to be used to recommend reduction of sampling frequency may include the following:

- Non-detection of a given parameter; or
- Detection of a given parameter at concentrations significantly below levels of regulatory concern.

5.3 Static Water Elevations

To determine the static water elevation, the Heartland sample collector will measure the static water level (SWL) prior to purging and sampling at each groundwater monitoring well. All static water level measurements will be obtained on the first day of the sampling event or within a 24-hour period.

The measurement will be obtained no more than 24 hours prior to purging the groundwater monitoring well. Each well will have a permanent reference point on the top of the well casing, designated as top of casing (TOC), from which all water level measurements will be taken. The reference point has been surveyed to the nearest 0.01 foot and has been referenced to mean sea level (MSL).

Heartland will take the measurement using an electronic water level meter capable of an accuracy of ± 0.01 foot. The meter will be decontaminated prior to each measurement by rinsing with distilled water prior to, or during, the process of reeling the tape back onto the spool. Once the tape is back on the spool, the measuring tape and probe will be rinsed with distilled water. Minimum contact of the tape and probe/sounder with the water in the well is required to decrease the potential for cross-contamination. Disposable latex gloves will be worn by the sample collector while determining the SWL.



Prior to collecting the measurement, field personnel will verify the location of the measuring point on the TOC. Measurements will be obtained at this location. Field personnel will slowly lower the probe into the well until the sounder beeps or the LED becomes illuminated. The measurement will be read from the tape to the nearest 0.01 foot increment and recorded in the field notes. This measurement is the SWL as measured in feet below the TOC measuring point.

The static water elevation (SWE) will then be calculated using the following equation:

$$\text{SWE} = \text{TOC} - \text{SWL}$$

Where:

SWE = static water elevation (ft MSL)

TOC = top of casing elevation (ft MSL)

SWL = static water level, depth to water below TOC (ft)

5.4 Monitoring Well Purging Procedures

Prior to sampling, each groundwater well will be purged. The wells to be sampled will be purged and sampled utilizing a dedicated disposable bailer or low-flow submersible pump. If a pump is to be utilized, the pumping rate will be limited to 100 ml/min or less (EPA Ground Water Handbook, EPA/625/5-87/016, dated March 1987). Groundwater will be removed until field parameters stabilize to $\pm 10\%$ over at least two (2) successive well volumes pumped (EPA Ground Water Handbook, EPA/625/6-87/016, dated March 1987), or a maximum of five (5) well volumes, or until the well is purged dry, whichever comes first.

If only the dedicated bailer is utilized to purge the wells, decontamination procedures are not required. If a submersible pump is used to purge the wells, the pump will be decontaminated prior to and after use at each well. These procedures will consist of scrubbing with Alconox® detergent then rinsing twice with deionized water.



Field parameters will be obtained for each volume of water removed during purging activities and will consist of pH, turbidity, temperature, and specific conductivity. The elevation of the water table will be recorded prior to any purging activities. The depth of the bottom of the well will be recorded after samples have been collected. Observations of the physical characteristics of the sample will also be recorded. Field testing equipment will be calibrated per manufacturer instructions prior to its use on each day.

5.5 Monitoring Well Sampling Procedures

Monitoring wells will be sampled after they recover to a minimum of 90% of the water level prior to purging.

All collected groundwater samples will be placed into laboratory-supplied plastic/glass containers as appropriate for the required analysis. Containers will be filled to the greatest extent possible to minimize any headspace. Samples to be analyzed for dissolved metals will be field-filtered with a 0.45-micron filter prior to the addition of preservatives.

The field-filtering apparatus consists of a twelve (12)-volt DC battery-powered peristaltic pump, tygon tubing, and a disposal 0.45-micron filter cartridge (in-line barrel filter). The groundwater sample is pumped at a flow rate of less than one hundred (100) milliliters per minute directly from the monitoring well or clean, disposable aliquot container through the peristaltic pump. The filter is placed in line on the high-pressure (discharge) side of the pump. The filtered sample flows directly into the laboratory-supplied sample container (containing the appropriate preservative) from the tygon tubing. New tygon tubing will be used at each sample location, or the tygon tubing will be decontaminated between sample locations by cleaning the tubing with an Alconox®/water mix and rinsing with deionized water.



5.6 Sample Custody and Shipping

Sample containers will be obtained from the laboratory and are precleaned by the manufacturer before use. Sample containers will be labeled with the well or sample designation, the date and time of sampling, and the sampler's name or initials. Samples will be placed on ice in a cooler and kept iced until received at the laboratory. Sample labeling for primary samples will be by individual well name (e.g., MW-101). Blind duplicated will be labeled as "DUP 01." The field sampler will record the location of the duplication in the field sampling notes. Equipment and field blanks will be labeled as such.

Samples for chemical analysis either will be delivered in person or shipped in coolers to the appropriate laboratory by overnight delivery service. Completed chain-of-custody (COC) records will be placed in a plastic bag, sealed, and taped to the inside cover of the cooler. After icing the samples, the coolers will be sealed and shipped. A tamper-proof custody seal will be affixed to each cooler used to transport samples for analysis. Sample collection and shipment will be coordinated with the laboratory in advance. The laboratory will be notified of shipments that are in transit.

The possession of samples will be traceable through the use of COC procedures. Specific COC records will accompany all sample shipping containers to document the transfer of the shipping containers and samples from the field collection point to the laboratory receiving the samples for analysis. The procedures to be implemented are as follows.

- Property identify and label each sample in the field.
- Complete COC records in the field, stating sample identification, the number and type of containers filled, the sampling date, the sampling time, and the sample collector's name. Fill out the COC record using indelible ink, preferably a ballpoint pen. Place the original (top) copy in the cooler with the samples, and



keep one copy. If the samples are to travel by common courier, indicate on the COC record the shipping number from the courier bill of lading.

- Pack the shipping containers with the samples, the COC records, and the ice packs. Assign each set of containers to be shipped together a COC record, which travels with the sample container.
- Seal and ship the containers to the appropriate laboratory. Affix a tamper-proof custody seal (provided by the analytical laboratory) to each cooler shipped. Identify common carriers or intermediate individuals on the COC record, and retain copies of all bills of lading.
- Receive and check the shipping containers in the laboratory for broken seals, damaged sample containers, or discrepancies. Instruct the laboratory to notify the sample collector immediately of any problems.

If an error is discovered on a sample COC record, the person who made the error will correct it when possible. Corrections or insertions are made by inserting the needed correction. No erroneous material is to be erased. Rather, a single line will be drawn through mistakes. The date and the initials of the person who is making the correction will be written beside the correction. This procedure applies to words or figures that are inserted or added to a previously recorded statement.

If a COC record is damaged in shipment, the field technician will prepare a written statement detailing the pertinent information, including how the sample was collected. The statement will include information such a field log book entries regarding the sample. Additional COC procedures are included in the Quality Assurance Project Plan (QAPP).

5.7 Equipment Decontamination

Appropriate equipment used for sampling will be decontaminated between sample points (i.e., after each well). Procedures for decontamination are outlined below.



Water Level Indicator, Conductivity/pH Meter

- Rinse probe or cup with soapy (phosphate-free soap) water.
- Rinse with deionized water.
- Air dry.

Bailers

- Use individual, precleaned, disposable bailers to purge wells and to collect samples.
- Use new bailers for each sample round. Discard the cord used to deploy and retrieve bailers between wells.

Pumps

- If submersible pumps are used for sampling, decontaminate them using an Alconox® and water wash and deionized water rinses prior to installation.

Tygon Tubing and Barrel Filters

- Discard tygon tubing after each well or decontaminate the tubing using an Alconox® and water wash and deionized water rinses prior to reuse. Barrel filters shall be discarded at the completion of each sampling event.

5.8 Analytical Parameters

The groundwater samples from each monitoring well will be analyzed for dissolved arsenic, field parameters, and geochemical parameters as presented in Table 4.



Table 4: Groundwater Sampling Analytical Constituents List

Analytical Suite	Sampling Analytical Method
Field Parameters	
pH	SM 4500-H+B
Specific Conductivity	EPA 120.1
Temperature	SM 2550B
Dissolved Metals	
Arsenic	EPA 200.8

5.9 Quality Assurance/Quality Control

Field quality control (QC) samples will consist of a blind duplicate sample, a field blank, and an equipment blank. Heartland will prepare duplicate samples by taking two independent samples as close as possible to the same point and time. They will be two separate samples taken from the same source, stored in separate containers, and analyzed independently. The primary sample will be collected first, followed by the duplicate. These duplicates are useful in documenting the precision of the sampling process. Duplicate samples will be collected for all analytes at a rate of one field duplicate per sampling event. The duplicate sample will be submitted as a blind duplicate to the laboratory. Blind duplicate sample locations must be identified in the field notes, but not on the sample labels or COC records. Field duplicates will be obtained from wells that previously contained analytes of interest.

At the end of each sampling day, a field blank will be collected consisting of distilled water or deionized water that has been brought onto the site. The water will be poured into a set of laboratory bottles that will be subject to the same analysis as each of the other samples. The field blank will be poured into the containers at a location no greater than fifty (50) feet from the last well to be sampled.

One equipment blank per sampling event will be collected and analyzed for all analytes to assess procedural errors in equipment decontamination. The equipment blank will use



the same water source as that used during decontamination procedures, and the water will be poured over or through sampling equipment (i.e., tubing).

6.0 QUALITY ASSURANCE PROJECT PLAN

This section presents the Quality Assurance Project Plan (QAPP) for the groundwater monitoring program as required by Heartland's RCRA/HSWA permit issued July 18, 2013.

6.1 Project Description

SWMU 11 consists of two (2) CKD landfills identified as the Old CKD Landfill and the New CKD Landfill. Numerous RFI and follow-up activities have taken place at SWMU 11 since 1991 through the present, including the installation and sampling of groundwater monitoring wells at both the Old CKD Landfill area and the New CKD Landfill area.

On July 18, 2013, the USEPA issued Heartland a new RCRA/HSWA permit that identified corrective action provisions pertaining to known SWMUs and OACs at the Heartland facility. Section 111.K.2.d.i of the permit required the development of a Groundwater Monitoring Plan such that Heartland can monitor the effectiveness and performance of the corrective measures and determine any failures of the corrective measures.

6.2 Quality Assurance/Quality Control (QA/QC) Procedures

6.2.1 Intended Use and Necessary Level of Precision and Accuracy

- The data will be used to identify and quantify if a released hazardous waste exists at SWMU 11 and will be used to monitor the effectiveness and performance of the corrective measures and determine any failures of the corrective measures.



- All analytical work will be performed to the highest degree of accuracy and precision possible as determined according to the specific analytical methods.

6.2.2 General Procedures for Representative Sampling

All data obtained as a result of any sampling and analytical effort must demonstrate as precisely and as accurately as possible the conditions existing at the time of sampling, including all other subsequent activity involving the sample (i.e., preservation, storage, transport, and analysis). Factors to be considered to assure representative samples are:

- Environmental conditions at the time of the sampling. Samples should not be taken during a precipitation event or even during extreme weather conditions.
- All sampling tools and equipment shall be of similar make and thoroughly inspected prior to use.
- A detailed sampling site plan should be prepared.
- Detailed sampling procedures for specific media and equipment shall be used.
- USEPA-approved equipment and procedures for obtaining representative samples shall be used.
- The representativeness of the sample media shall be assured by visual judgment and physical criteria.
- The analytical parameters selected shall be determined based on process knowledge, historical disposal activities and wastes, and plant material purchase and use records.



6.3 Specific Procedures for Representative Sampling

Heartland has standard technical procedures developed for QA/QC purposes that will be followed during the field operations. The specific Heartland procedures that will be used during the implementation of this Groundwater Monitoring Plan are included in Appendix C. Where necessary, site-specific modifications or clarifications to Heartland's QA procedures will be included in sections of this QAPP.

6.3.1 Groundwater Sampling

Groundwater samples will be collected after the monitoring wells recover to a minimum of 90% of the initial water level as measured prior to purging. Samples to be analyzed for dissolved metals will be field-filtered with a 0.45-micron filter prior to the addition of sample preservatives. Well purging will be considered complete when two (2) consecutive measurements differ by less than 10% for pH, conductivity, and temperature, or after a maximum of five (5) well volumes have been purged or the well is purged dry, whichever comes first.

6.4 Documentation of Field Sampling Operations and Procedures

- All field sampling procedures and operations shall be in written format for SWMU 11.
- A photographic documentation log will be prepared. The log will contain an indexed set of photographs documenting each sampling location and each sampling procedure used during the work.
- A field log book shall be developed and used for all field sampling operations and procedures.
- Entries in the field log book shall include the following:
 - Purpose of sampling;
 - Location(s) of sampling point(s);



- Name and address of field contact;
- Producer of waste and address, if different than location;
- Type of process producing the waste;
- Type of waste or media;
- Suspected waste composition, including concentrations;
- Number and volume of sample taken;
- Description of sampling point and sampling methodology;
- Sample preservatives;
- Date and time of collection;
- Collector's sample identification number(s);
- Sample distribution and how transported;
- References such as maps, site plans, or photographs of the sampling site;
- Field observations;
- Any field measurements made; and,
- Signatures of personnel responsible for observations.

6.4.1 Description of Analytical Procedures

- All analytical procedures shall be approved by USEPA.
- The latest version of *EPA SW-846 Test Methods for Evaluating Solid Wastes* shall be used for all analytical work.
- All analytical procedures shall be carried out under the guidance of a chemical science professional that has experience in performing the specified analyses on the type of sample.
- The laboratory shall be state-certified for the specific analytical parameters and approved according to the USEPA CLP Protocol.
- The anticipated USEPA SW-846 analytical procedures to be used for the initial sample(s) analyses are:



- Dissolved Arsenic – 6010.

Quality control checks will be performed to ensure that the data collected is representative and valid. Items that will be part of the quality control program are as follows.

6.4.2 Field Activities

- Standardized checklists and field/log notebooks will be used throughout all field sampling and associated activities.
- The completeness and quality of all checklists and field log/notebooks will be verified by an independent person.
- Strict adherence to COC procedures will be documented and verified throughout all phases of sampling and analyses.
- All field equipment will be inspected and calibrated prior to and after use following either the manufacturer's instructions or standard operating procedures.
- Replicate samples consisting of at least one sample per sampling event will be collected and analyzed for all specific analytical parameters.
- Field blanks will be collected once per sampling event.
- Equipment rinsate samples will be collected once per sampling event.

A summary of field QC samples is provided in Table 5, below.



Table 5: Field QC Samples per Sampling Event

Type of Sample	Metal (Dissolved Arsenic)
Equipment Rinsate	1/Sampling Event
Field Blank	1/Sampling Event
Field Duplicates	1/Sampling Event

6.4.3 Analytical Activities

- Method blanks will be used to establish background levels and for correction purposes.
- Laboratory control samples to check operator and instrument performance will be used.
- Calibration check samples will be incorporated during the course of analysis of the waste or media samples.
- Replicate samples will be analyzed for reproducibility and other statistical evaluation.
- Matrix spike duplicates will be used to evaluate analytical performance and to establish/correct for matrix interferences.
- External quality control samples (i.e., “blind” samples) will be analyzed as a routine laboratory performance check.
- Quality control charts or reports demonstrating overall analytical performance for specific methodology will be produced either independently or as a result of participating in a state or federal QA/QC program.
- Zero and span gases will be used for instrument setup and calibration.



- Routine report quality control checks will be used to assure proper analytical chemistry/reaction performance.
- QA objectives for measurement of data in terms of precision, accuracy, representativeness, completeness, and comparability.

The QA objective for the determination of accuracy within the measurement system will be accomplished through the analysis of blank samples (e.g., distilled/deionized water) and the analysis of samples spiked at a known concentration using standard references material that is certified and traceable.

The field matrix spike objective is to provide a best-case estimate of bias based on recovery. This will include matrix effects associated with sample preservation, shipping, preparation, and analysis.

The lab matrix spike is intended to provide an estimate of recovery incorporating matrix effects associated with sample preparation and analysis only.

The analysis matrix spike is intended to provide an indication of matrix effects associated with the analysis process only.

The analysis of a known concentration of a standard reference material into an appropriate method solvent will be used to provide an indication of the accuracy of the analytical system calibration.

The QA objective for the determination of precision will be accomplished by the sampling and analysis of replicate samples that represent approximately 10% of each media sampled.

The QA objective of representativeness is intended to demonstrate as precisely and accurately as possible the conditions that existed at the time of measurement.



Consideration will be given to the following factors throughout the groundwater sampling process:

- Environmental conditions at the time of sampling;
- Fit of the modeling or other estimation techniques to the event(s);
- Appropriateness of site file information versus release conditions;
- Appropriateness of sampling and analytical methodologies;
- Number of sampling points;
- Representativeness of selected media; and
- Representativeness of selected analytical parameters.

The QA objective of completeness is intended to ensure that the proper amount of valid analytical data is obtained from the measurement system as can be expected to be obtained under normal conditions.

The QA objective of comparability is intended to ensure that the data collected from the measurement system can be compared to other data collected from another measurement system for similar purposes. The standard USEPA analytical methodologies contained in the reference document *EPA SW-846* should be sufficient to ensure data comparability.

6.4.4 Sample Custody

COC procedures will be used to ensure sample integrity from the point of collection to data reporting. These procedures will include the ability to trace the possession and handling of samples from collection through analysis and final disposition.

Samples collected by the field team members and shipped to the laboratory will be appropriately marked with a sample label. The samples will remain in the actual possession of or in view of the field team members until the samples have been placed in a designated secure area.



COC forms will be filled out and signed by the field team members who collected the sample whenever custody is transferred to the shipping company. The original of the two-part form will be placed in a waterproof bag and will accompany the samples in lieu of a recipient's signature, and the copy will be retained by Heartland and will be maintained with the project records. The laboratory personnel receiving the sample shipment will sign the COC after opening the cooler(s) and unpacking the samples.

At least two custody seals will be affixed to the outside of each cooler, if the samples are to be shipped to a laboratory by a bonded shipping company. The seals will be signed and dated and then placed over the cooler seam. Nylon-reinforced tape will be placed over the seal to reduce the potential for accidental tearing. An air bill will be completed and attached to the cooler. Air bill numbers will be recorded on the COC form accompanying the samples.

Copies of the COC forms and shipping bills will be saved by Heartland and will become part of the project documentation. Heartland will phone the laboratory each day that samples are shipped and provide the air bill number(s), number of coolers, and number of samples; or, Heartland may fax the COC forms to the laboratory. Heartland will make a telephone log of these calls, including the air bill numbers.

6.4.5 Decontamination

Appropriate equipment used for sampling will be decontaminated between sample points (i.e., after each well). Procedures for decontamination are outlined below.

Water Level Indicator, Conductivity/pH Meter

- Rinse probe or cup with soapy (phosphate-free soap) water.
- Rinse with deionized water.
- Air dry.



Bailers

- Use individual, precleaned, disposable bailers to purge wells and to collect samples.
- Use new bailers for each sample round. Discard the cord used to deploy and retrieve bailers between wells.

Pumps

- If submersible pumps are used for sampling, decontaminate them using an Alconox® and water wash and deionized water rinses prior to installation.

Tygon Tubing and Barrel Filters

- Discard tygon tubing after each well or decontaminate the tubing using an Alconox® and water wash and deionized water rinses prior to re-use. Barrel filters shall be discarded at the completion of each sampling event.

6.5 Data Reduction, Validation, and Reporting

6.5.1 Data Reduction

Sample calculations and/or the formulas will appear on all bench data forms, which will be submitted with the CMI annual report.

6.5.2 Data Validation

Before any data is transcribed on a report, or verbally transmitted to a customer, it must be reviewed by the laboratory director or his/her designee. This will include, but not be limited to, work sheets, notebooks, chromatograms, and calibration charts. The laboratory director or designee will review all the information to verify its correctness. The data is then sent to typing. When the report is received from typing, it is validated before being signed. The report narrative must be signed in original signature by the laboratory director or designee.



In the event the laboratory director cannot validate all data reported for each sample, he/she will provide a detailed description of the problems associated with the sample in the report narrative.

6.6 Corrective Action for QA/QC Problems

The corrective action procedures to be used as part of the QA/QC program will include the following.

- Reference to method performance for relative standard deviation, accuracy, precision, peak area, retention times, elution patterns, and reproducibility. The establishment of predetermined limits for these measures, as referenced from published (SW-846) analytical procedures, will be used to evaluate the need for corrective actions.
- For each measurement system, the chemical science professional in charge of the system is responsible for evaluating the system performance and for determining if the established limits for data have been exceeded. The laboratory director and/or sector analytical supervisors will be responsible for initiating the corrective action. The final authority for approving any corrective action shall be the laboratory director.

When the analysis of a quality control check indicates the system may be out of control, the laboratory director is notified and corrective action is taken. The steps in the corrective action system include, but are not limited to:

- Identifying and defining the problem;
- Assigning responsibility for investigating the problem;
- Determining a corrective action (i.e., removal of the instrument from service, prepare fresh standards and recalibrate, etc.);
- Assigning responsibility for implementing the corrective action;



- Implementing the corrective action and evaluating its effectiveness; and,
- Verifying that the corrective action has eliminated the problem by reanalyzing a QC sample.

6.7 QA Reports to Management

All QC data is critically reviewed by the laboratory director and the outside QA Manager, with periodic reporting on data accuracy and precision, results of performance audits, results of system audits, and significant QA problems and the corrective actions taken. The reports for each project also include a separate QA section that summarizes the QC data generated by the laboratories.

If any problems develop during the course of any analysis, immediate steps are taken by the laboratory supervisor to rectify the problem. Such steps are returning instruments, testing reference material samples, running sets of standards, etc. If the problem is not solved at the point, the laboratory director is then notified.

7.0 DATA MANAGEMENT PLAN

7.1 Introduction

This Data Management Plan (DMP) outlines the procedures to be followed for the inventory, control, storage, and retrieval of data collected during the performance of the work outlined in Heartland's Groundwater Management Plan. During the performance of this investigation, a variety of technical data will be generated and reduced for use. The procedures contained in the DMP are designed to ensure that the integrity of the investigation data and results are maintained for subsequent use.

The Prime Contractor, as identified by Heartland, will be responsible for maintaining the project files according to the procedures outlined in this document. Data generated by analytical laboratories and other subcontractors will be submitted directly to the Prime



Contractor. All laboratory documentation for the analytical laboratories will be maintained for purposes of validating the analytical data collected during the investigation. All summary reports generated by the Prime Contractor will be kept in the project file.

7.2 Data Record

The project files will be the primary data storage and information system for the groundwater monitoring program. An outline of the file structure is shown below. The major file categories are Project Administration, Correspondence, Site Data, Regional Data, and Reports. Procedures controlling the storage, receipt, and distribution of all incoming and outgoing data, documents, and reports related to the investigation are outlined below.

Project Files Index

- Project Administration (Major Category)
 - Proposal (sub-file)
 - Contracts/Bids (sub-file)
 - Project Plans (sub-file)
 - Project Accounting/Budget (sub-file located in accounting)
 - General Project Information (sub-file) for miscellaneous information not covered in other categories
- Correspondence (Major Category)
 - Correspondence to Prime Contractor (sub-file)
 - Correspondence from Prime Contractor (sub-file)
 - Telephone Correspondence (sub-file)
 - Meeting Notes/Minutes (sub-file)
 - Internal Memos (sub-file)
 - Regulatory Correspondence (sub-file)
 - Correspondence (sub-file)



- Site Data (Major Category)
 - Agency File Data (sub-file) for copies of Agency records
 - Boring/Well Logs (sub-file)
 - Chain of Title (sub-file)
 - Daily Logs (sub-file)
 - Field Notes and Memos (sub-file)
 - Geologic Logs/Data (sub-file)
 - Health and Safety Data (sub-file) for field monitoring and notes
 - Laboratory Results/Data (sub-file) for soil and water combination analysis results
 - Photos (sub-file) pocket folder
 - Regulatory Databases (sub-file)
 - Site Maps (sub-file) general
 - Water Sampling Logs (sub-file)
- Regional Data (Major Category)
 - Geology (sub-file)
 - Hydrogeology (sub-file)
 - Maps (sub-file)
- Reports (Major Category)
 - Prime Contractor Reports (sub-file)
 - Other Project Reports (sub-file)

7.2.1 Incoming Data, Reports, and Correspondence

All incoming data, reports, and correspondence will be logged in and date-stamped. If distribution of any document is required, the appropriate number of copies will be made and distributed by the Prime Contractor project manager or a designee per distribution lists to be developed as the project proceeds. The original document received will not be distributed.



7.2.2 Outgoing Data, Reports, and Correspondence

All outgoing project data, reports, and correspondence will be coordinated for transmittal by the Prime Contractor project manager or a designee.

Appropriate project personnel – the Heartland project manager, the Prime Contractor project manager, and the quality control review team leader – will review all outgoing documents. All final reports will be signed and certified in accordance with 40 CFR 270.11 and 270.30(k) by the author(s).

A number of deliverables will be prepared for submission to USEPA. The scope and content of all reports and correspondence will be determined on a report-specific basis and in accordance with the reporting requirements specified in RCRA/HSWA Permit Section II.G. Upon request, Heartland will provide electronic copies of the groundwater monitoring report text and tables in Microsoft Word® and Excel® formats.

Unless otherwise specified, two (2) copies of plans, reports, notification, or other submissions required by the Heartland RCRA/HSWA permit shall be submitted to USEPA via certified mail, delivery service, or hand-delivered to:

U.S. Environmental Protection Agency, Region 7
Air and Waste Management Division
Waste Remediation and Permits Branch
ATTN: Ken Herstowski
11201 Renner Blvd.
Lenexa, Kansas 66129

In addition, one (1) copy of these plans, reports, notifications, or other submissions shall be submitted to:



Kansas Department of Health and Environment
Curtis State Office Building
Bureau of Waste Management
Hazardous Waste Permits Section
ATTN: Mustafa Kamal
1000 SW Jackson, Suite 320
Topeka, Kansas 66612-1366

7.2.3 Telephone Conversations, Logs, and Meeting Notes

Personnel assigned to the project will maintain logs of individual telephone conversations. Such project personnel will retain these notes until the end of each month, and then they will be filed along with other project documents. Assigned project personnel will take notes from project meetings and conference telephone conversations. These notes will be distributed to the appropriate project personnel. The originals will be placed in the project file.

7.3 Tabular Displays

The database can be used to develop statistical summaries, along with maximum, minimum, and average concentrations at a specific unit or throughout the facility. Supporting data to be presented in the groundwater monitoring report include tabular reports of raw data (usually provided in an appendix), data sorted by media or chemical constituent for each unit, data reduced for statistical analyses, and data sorted by location or depth. Queries can be designed to run a comparison between the detected concentration and the regulatory comparison criteria to produce a table showing which locations and parameters exceed the screening criteria. Summary data also can be supplied in tabular form.



7.4 Graphical Displays

Mapping of data by concentration of contaminant, unit, or other parameters also may be used to aid in site interpretation and the evaluation of candidate units for further investigation. Information stored in the environmental database can be exported for use with graphical software to produce graphical presentations of the data. Graphical displays include bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three-dimensional graphs, etc.

8.0 RECORDKEEPING PLAN

8.1 Introduction

The Recordkeeping Plan outlines the recordkeeping procedures to be followed such that data, reports, and project files can be easily obtained for future access.

8.2 Records Location

All data, reports, and project files developed as part of this Groundwater Monitoring Plan will be kept on-site at the Heartland terminal office, as well as at the Buzzi Unicem USA corporate offices in Bethlehem, Pennsylvania.

8.3 Records Retention

As set forth in Section II.E.9.b. of the RCRA/HSWA permit, Heartland shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations for the active life of the facility, and for disposal facilities for the post-closure care period as well.



9.0 WASTE MANAGEMENT PLAN

9.1 Introduction

The Waste Management Plan outlines the procedures to be followed such that waste generated during the implementation of the Groundwater Monitoring Plan is properly managed.

9.2 Waste Management Practices

Limited volumes of waste material are anticipated to be generated during implementation of the Groundwater Monitoring Plan. Waste materials expected to be generated include used personal protective equipment (PPE) (i.e., gloves) and sampling equipment such as disposable bailers, twine, rags, and tubing. All waste materials will be collected, bagged, and placed into a solid waste receptacle on the Heartland property for transport and disposal at a licensed sanitary landfill.

Management of purge water from monitoring well purging activities will be by disposing of the purge water directly onto the ground a minimum of ten (10) feet from each well.

10. PROJECT SCHEDULE

The Groundwater Monitoring Plan for SWMU 11 will commence within 90 days of Work Plan approval by the USEPA such that semi-annual sampling events will be conducted during the months of May and November.

In accordance with Heartland's RCRA/HSWA permit Section 111.K.2.d, results of the monitoring evaluation shall be presented to the USEPA in the annual report required by permit Section III.L.4, which requires that a CMI Annual Report be submitted to the Director no later than March 1 of each year of the prior year's performance.



Additionally, Heartland will complete a Class 1 permit modification to the USEPA within thirty (30) days of approval of the Groundwater Monitoring Plan to include the approved Plan as Permit Attachment 4, as specified in Section III.K.2.d.iv of the permit.

11.0 COST ESTIMATE

A cost estimate is provided for activities to be conducted during the implementation of the Groundwater Monitoring Plan at SWMU 11 on a yearly basis.

Reasonable assumptions were made as to the amount of time required to implement the Plan and prepare the annual CWI Report, and a cost estimate from a reputable laboratory was obtained. Preparation of the Class 1 permit modification is not included in this cost estimate.

Estimates for the field investigation were based on three days in the field per semi-annual sampling event. No meetings with the USEPA were assumed, and project management was assumed to occur throughout the duration of the project.

The following is a breakdown of the cost estimate.

• Semi-annual Sampling Events (2)	\$2,070
• Laboratory Analysis.....	\$2,386
• Data Analysis and Reports.....	\$3,000
TOTAL.....	\$7,456



12.0 CERTIFICATION

Pursuant to Section 11.F of the RCRA/HSWA permit, SYA and Heartland are providing the following certification.

I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Date:_____

Date:_____

Signature:_____

Signature:_____

Name: Robert J. Schreiber, Jr., P.E., Q.E.P.
Registered Kansas Professional Engineer
Registration Number 11219

Name:_____
Title:_____

Schreiber, Yonley & Associates
16252 Westwoods Business Park Drive
Ellisville, Missouri 63021

Heartland Cement Company
dba Buzzi Unicem USA



APPENDIX A

BORING LOGS AND MONITORING WELL COMPLETION DIAGRAMS

WELL QLGW-1

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: OLD KILN DUST LANDFILL
 DATE STARTED: 1/23/93
 DATE COMPLETED: 1/23/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 752.10 FT.
 WATER LEVEL: 5.57 FT.
 WEATHER: SUNNY, 50° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixtures, moisture, other notes, ORIGIN	VISUAL CONTAM.				ODOR			LITHOLOGY	DEPTH	WELL CONSTRUCTION
					NONE	STAIN	SHEEN	HEAVY	NONE	SLIGHT	MODERATE	STRONG		
0-5	augered	100	0	Dark brown silty CLAY grading to black									0	
5-10	augered	80	0	grading to brown clay and silt, trace sand									5	
10-15	augered	100	0	Alternating layers of SAND and SILT, grading to light brown/orange									10	
15-20	augered	100	0	Orange/light brown loose fine SAND and SILT, very moist, gray and dark brown lenses interspersed water first evident at 19+ ft. saturated									15	
20-25	augered	75	0										20	
25-30	augered	30	0	SAND and SILT with fractured bedrock (limestone)									25	
				Bedrock (limestone) at 28+ ft.									30	
				Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									35	

ATLANTIC

WELL OLGW-2

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: OLD KILN DUST LANDFILL
 DATE STARTED: 1/23/93
 DATE COMPLETED: 1/23/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 745.84 FT.
 WATER LEVEL: 6.70 FT.
 WEATHER: SUNNY, 45° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixtures, moisture, other notes, ORIGIN	VISUAL CONTAM.						ODOR NONE SLIGHT MODERATE STRONG	LITHOLOGY	DEPTH	WELL CONSTRUCTION
					NONE	STAIN	SHED	HEAVY	NONE	SLIGHT	MODERATE	STRONG		
0-5	augered	60	0	Augered through 1.5+ ft. of kiln dust which had been pushed into work area by bulldozer Dark brown clayey SILT, trace organics									0	
5-10	augered	100	0	slightly moist									5	
10-15	augered	100	0	Grading to brown silty CLAY, moist									10	
15-20	augered	40	0	saturated									15	
20-25	augered	60	0	Brown to gray CLAY, saturated									20	
				Total Depth 25+ ft.									25	
				Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									30	

ATLANTIC

WELL OLGW-3

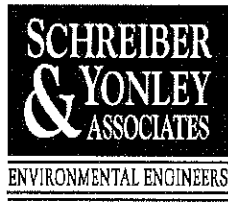
PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: OLD KILN DUST LANDFILL
 DATE STARTED: 1/23/93
 DATE COMPLETED: 1/23/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 752.53 FT.
 WATER LEVEL: 18.81 FT.
 WEATHER: SUNNY, 35° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION	VISUAL CONTAM.			ODOR			LITHOLOGY	DEPTH	WELL CONSTRUCTION
				color, density, SOIL, admixtures, moisture, other notes, ORIGIN	NONE	STAIN	SHOWN	NONE	SLIGHT	MODERATE	STRONG		
0-5	augered	80	0	Augered through turf, brown compact fine sand and silt, with gravel, organics, trace clay, dry Grading to dark brown compact silty CLAY, trace fine sand, dry								0	
5-10	augered	100	0	Dark brown to black loose silty CLAY, trace fine sand, dry								5	
10-15	augered	95	0									10	
15-20	augered	100	0	trace gravel, slightly moist at 19 1/2 ft.								15	
20-25	augered	100	0	some cobbles, moist								20	
25-30	augered	90	0	grading to brown, compact, some gravel, very moist								25	
30-35	augered	90	0	Dark brown compact silty CLAY with fine sand, trace gravel, saturated								30	
				grading to orange-brown with gray lenses								35	
				weathered bedrock (limestone) in last 0.5 ft. of spoon								40	
				Total Depth 34.5 ft.									

Note: Bentonite seal was allowed to
 setup for 8 hours (minimum) prior to
 grouting remainder of annulus.

ATLANTIC



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LOG OF TEST BORING

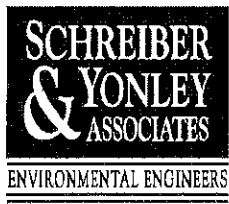
Client: Buzzi Unicem			Project No:			Boring / Well No. OLGW-4			
Project: Heartland Cement						Page No. 1 of 2			
Location: Independence, Ks.						Start Date: 3/23/2004			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/24/2004			
Drilling Contractor: Layne						Sample Method:			
Drill Rig: Mud Rotary									
Water Encountered ? :			Total Boring Depth: 34			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: -			Inspector (s): Pope			
Static Water Level: 4.3			Well Depth: 34			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20					Silty clay, as above.				
Notes:									



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LOG OF TEST BORING

Client: Buzzi Unicem				Project No:		Boring / Well No. OLGW-4			
Project: Heartland Cement						Page No. 2 of 2			
Location: Independence, Ks.						Start Date: 3/23/2004			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/24/2004			
Drilling Contractor: Layne						Sample Method:			
Drill Rig: Mud Rotary									
Water Encountered ? :			Total Boring Depth: 34		Hole Diameter:				
Initial Water Level:			Surface Casing Depth: -		Inspector (s): Pope				
Static Water Level: 4.3			Well Depth: 34		Company: Schreiber, Yonley & Associates				
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33					Total depth = 34 feet bgs.				
34									
35									
36									
37									
38									
39									
40									
Notes: Monitoring well set with 10 feet of screen, and 27 feet of riser for an above ground completion.									



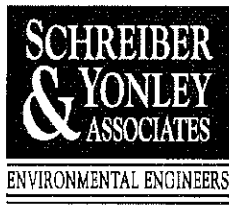
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LOG OF TEST BORING

Client: Buzzi Unicem		Project No:		Boring / Well No. OLGW-5	
Project: Heartland Cement				Page No. 1 of 2	
Location: Independence, Ks.				Start Date: 3/25/2004	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 3/25/2004	
Drilling Contractor: Layne				Sample Method:	
Drill Rig: Mud Rotary					
Water Encountered ? :		Total Boring Depth: 30		Hole Diameter:	
Initial Water Level:		Surface Casing Depth: -		Inspector (s): Pope	
Static Water Level:		Well Depth: 30		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20					Silty clay, as above.				

Notes:



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LOG OF TEST BORING

Client: Buzzi Unicem				Project No:		Boring / Well No. OLGW-5			
Project: Heartland Cement						Page No. 2 of 2			
Location: Independence, Ks.						Start Date: 3/25/2004			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/25/2004			
Drilling Contractor: Layne						Sample Method:			
Drill Rig: Mud Rotary									
Water Encountered ? :			Total Boring Depth: 30		Hole Diameter:				
Initial Water Level:			Surface Casing Depth: -		Inspector (s): Pope				
Static Water Level:			Well Depth: 30		Company: Schreiber, Yonley & Associates				
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
22									
23									
24									
25									
26									
27									
28									
29									
30									
31					Total depth = 30 feet bgs.				
32									
33									
34									
35									
36									
37									
38									
39									
40									
Notes: Monitoring well set with 10 feet of screen, and 23 feet of riser for an above ground completion.									



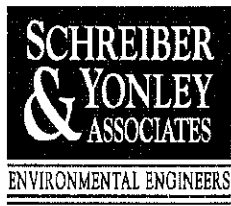
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LOG OF TEST BORING

Client: Buzzi Unicem		Project No:		Boring / Well No. OLGW-6	
Project: Heartland Cement				Page No. 1 of 2	
Location: Independence, Ks.				Start Date: 3/25/2004	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 3/25/2004	
Drilling Contractor: Layne				Sample Method:	
Drill Rig: Mud Rotary					
Water Encountered ? :		Total Boring Depth: 30		Hole Diameter:	
Initial Water Level:		Surface Casing Depth: -		Inspector (s): Pope	
Static Water Level: 18.98		Well Depth: 30		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20					Silty clay, as above.				

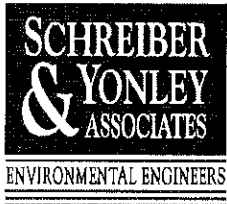
Notes:



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LOG OF TEST BORING

Client: Buzzi Unicem				Project No:		Boring / Well No. OLGW-6			
Project: Heartland Cement						Page No. 2 of 2			
Location: Independence, Ks.						Start Date: 3/25/2004			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/25/2004			
Drilling Contractor: Layne						Sample Method:			
Drill Rig: Mud Rotary									
Water Encountered ? :				Total Boring Depth: 30		Hole Diameter:			
Initial Water Level:				Surface Casing Depth: -		Inspector (s): Pope			
Static Water Level:				Well Depth: 30		Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
22									
23									
24									
25									
26									
27									
28									
29									
30									
31					Total depth = 30 feet bgs.				
32									
33									
34									
35									
36									
37									
38									
39									
40									
Notes: Monitoring well set with 10 feet of screen, and 23 feet of riser for an above ground completion.									



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LOG OF TEST BORING

Client: Buzzi Unicem				Project No:		Boring / Well No. OLGW-7			
Project: Heartland Cement						Page No. 1 of 1			
Location: Independence, Ks.						Start Date: 7/20/2004			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 7/20/2004			
Drilling Contractor: Layne						Sample Method:			
Drill Rig: Mud Rotary									
Water Encountered ? :				Total Boring Depth: 17		Hole Diameter:			
Initial Water Level:				Surface Casing Depth: -		Inspector (s): Pope			
Static Water Level: 4.73				Well Depth: 17		Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Notes: Monitoring well set with 10 feet of screen and 10 feet of riser for above ground completion.



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LOG OF TEST BORING

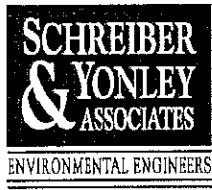
Client:			Project No: 070113		Boring / Well No. OLGW-8		Page No. 1 of 1		
Project: Heartland Cement Company									
Location: Independence, Kansas					Start Date: 2/24/2009				
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/24/2009			
Drilling Contractor: Pratt Environmental Well Service					Sample Method: Hollow Stem Auger				
Drill Rig: Stardrill 300									
Water Encountered ? : Yes			Total Boring Depth: 22'		Hole Diameter: 6"				
Initial Water Level:			Surface Casing Depth: -		Inspector (s): MFM				
Static Water Level:			Well Depth:		Company: Schreiber, Yonley & Associates				
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1	3-8		100		GRAVEL: Coarse, road pad fill		G		
2									
3									
4									
5	8-13		100		SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
6									
7									
8									
9	13-18		100		Wet				
10									
11									
12									
13	18-22		100						
14									
15									
16									
17									
18									
19									
20									
					Continued Silty Clay to TD of 22'.				
Notes: Monitoring well constructed with 2-inch PVC screen from 7'-22' BGS, riser from 3' AGS - 7' BGS, sand from 5'-22' BGS, bentonite from 0'-5' BGS.									



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LOG OF TEST BORING

Client:		Project No:		070113		Boring / Well No.		OLGW-9	
Project: Heartland Cement Company						Page No. 1 of 1			
Location: Independence, Kansas						Start Date: 2/24/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/24/2009			
Drilling Contractor: Pratt Environmental Well Service						Sample Method: Hollow Stem Auger			
Drill Rig: Stardrill 300									
Water Encountered ? : Yes			Total Boring Depth: 22'			Hole Diameter: 6"			
Initial Water Level:			Surface Casing Depth: -			Inspector (s): MFM			
Static Water Level:			Well Depth:			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					GRAVEL: Coarse, road pad fill		G		
2									
3									
4					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
5	3-8		100						
6									
7									
8									
9									
10	8-13		100						
11									
12									
13					Wet				
14									
15	13-18		100						
16									
17									
18									
19									
20	18-22		100		Continued Silty Clay to TD of 22'.				
Notes: Monitoring well constructed with 2-inch PVC screen from 7'-22' BGS, riser from 3' AGS - 7' BGS, sand from 5'-22' BGS, bentonite from 0'-5' BGS.									



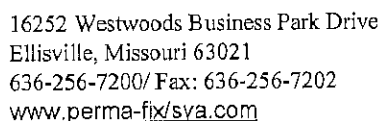
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LOG OF TEST BORING

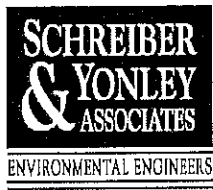
Client:		Project No: 070113		Boring / Well No. OLGW-10	
Project: Heartland Cement Company				Page No. 1 of 1	
Location: Independence, Kansas				Start Date: 2/24/2009	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 2/24/2009	
Drilling Contractor: Pratt Environmental Well Service				Sample Method: Hollow Stem Auger	
Drill Rig: Stardrill 300					
Water Encountered ? : Yes		Total Boring Depth: 19.5'		Hole Diameter: 6"	
Initial Water Level:		Surface Casing Depth: -		Inspector (s): MFM	
Static Water Level:		Well Depth:		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					GRAVEL: Coarse, road pad fill		G		
2									
3									
4					SILTY CLAY; reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
5	3-8		100						
6									
7									
8									
9									
10	8-13		100						
11									
12									
13									
14					Wet				
15	13-18		100						
16									
17									
18									
19	18-19.5		100						
20					Auger refusal at 19.5'				

Notes: Monitoring well constructed with 2-inch PVC screen from 4.5'-19.5' BGS, riser from 3' AGS - 4.5' BGS, sand from 2.5'-19' BGS, bentonite from 0'-2.5' BGS.



Client:				Project No: 070113		Boring / Well No. OLGW-11			
Project: Heartland Cement Company						Page No. 1 of 1			
Location: Independence, Kansas						Start Date: 2/24/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/24/2009			
Drilling Contractor: Pratt Environmental Well Service						Sample Method: Hollow Stem Auger			
Drill Rig: Stardrill 300									
Water Encountered ? : Not observed			Total Boring Depth: 38'			Hole Diameter: 6"			
Initial Water Level:			Surface Casing Depth: -			Inspector (s): MFM			
Static Water Level:			Well Depth:			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38					Auger refusal at 38'				
39									
40									
Notes: Monitoring well constructed with 2-inch PVC screen from 23'-38" BGS, riser from 3' AGS - 23' BGS, sand from 21' to 38' BGS, bentonite from 0'-21' BGS.									



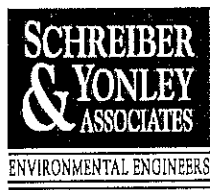
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LOG OF TEST BORING

Client:		Project No: 070113		Boring / Well No. OLGW-12	
Project: Heartland Cement Company				Page No. 1 of 1	
Location: Independence, Kansas				Start Date: 2/25/2009	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 2/25/2009	
Drilling Contractor: Pratt Environmental Well Service				Sample Method: Hollow Stem Auger	
Drill Rig: Stardrill 300					
Water Encountered ? : Not observed		Total Boring Depth: 20'		Hole Diameter: 6"	
Initial Water Level:		Surface Casing Depth: -		Inspector (s): MFM	
Static Water Level:		Well Depth:		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
2									
3									
4									
5	3-8		100						
6									
7									
8									
9									
10	8-13		100						
11									
12									
13									
14									
15	13-18		100						
16									
17									
18									
19									
20	18-20		100		Auger refusal at 20'				

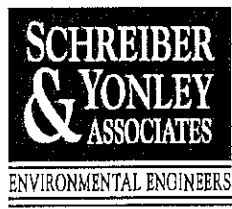
Notes: Monitoring well constructed with 2-inch PVC screen from 5'-20" BGS, riser from 3' AGS - 5' BGS, sand from 3' to 20' BGS, bentonite from 0'-3' BGS.



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LOG OF TEST BORING

Client:					Project No: 070113		Boring / Well No. OLGW-1D			
Project: Heartland Cement Company							Page No. 1 of 5			
Location: Independence, Kansas							Start Date: 2/25/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/27/2009				
Drilling Contractor: Pratt Environmental Well Services							Sample Method:			
Drill Rig: Stardrill 300										
Water Encountered ? :					Total Boring Depth: 95'		Hole Diameter:			
Initial Water Level:					Surface Casing Depth: 35'		Inspector (s): MFM			
Static Water Level:					Well Depth: 95'		Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.	
1					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL			
2										
3					Mud rotary to 35'					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
Notes: 7 inch steel casing set and cemented to 31.5' BGS. 2-inch PVC screen set from 80-95' BGS, riser from 3' AGS to 80' BGS. Sand placed from 75'-95' BGS, bentonite from 0- 75'.										



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LOG OF TEST BORING

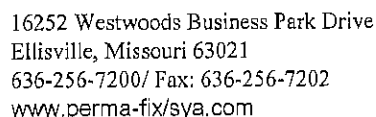
Client:				Project No: 070113		Boring / Well No. OLGW-1D			
Project: Heartland Cement Company						Page No. 2 of 5			
Location: Independence, Kansas						Start Date: 2/25/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/27/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 95'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 35'			Inspector (s): MFM			
Static Water Level:			Well Depth: 95'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
22									
23									
24									
25									
26					LIMESTONE (Drum Formation): light gray, shale partings.				
27									
28									
29									
30									
31					SHALE (Cherryvale Formation): gray, thinly laminated				
32									
33									
34									
35									
36					Casing set and cemented at 35'. Switch to air rotary drilling				
37									
38									
39									
40									
Notes:									



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LOG OF TEST BORING

Client:		Project No:		070113		Boring / Well No.		OLGW-1D	
Project: Heartland Cement Company						Page No. 3 of 5			
Location: Independence, Kansas						Start Date: 2/25/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/27/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 95'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 35'			Inspector (s): MFM			
Static Water Level:			Well Depth: 95'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
41					SHALE (Cherryvale Formation): gray, thinly laminated				
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
Notes:									



Client:					Project No:		070113		Boring / Well No.		OLGW-1D										
Project:					Heartland Cement Company					Page No.		4 of 5									
Location:							Independence, Kansas														
Surface Elevation:							Top of Casing Elevation:														
Drilling Contractor:							Pratt Environmental Well Services														
Drill Rig:							Stardrill 300														
Water Encountered ? :							Total Boring Depth:		95'		Hole Diameter:										
Initial Water Level:							Surface Casing Depth:		35'		Inspector (s):			MFM							
Static Water Level:							Well Depth:		95'		Company:			Schreiber, Yonley & Associates							
Depth BGS (ft.)		Sample Interval		N		Rec. % RQD		PID Units		Description of Materials/Remarks			Moisture		Soil Class		Graphic Log		Well Diag.		
61										SHALE (Cherryvale Formation): gray, thinly laminated											
62																					
63																					
64																					
65																					
66																					
67																					
68																					
69																					
70																					
71																					
72										LIMESTONE (Cherryvale Formation): light gray											
73																					
74																					
75																					
76																					
77																					
78										SHALE (Cherryvale Formation): gray, thinly laminated											
79																					
80																					
Notes:																					



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LOG OF TEST BORING

Client:				Project No: 070113		Boring / Well No. OLGW-1D			
Project: Heartland Cement Company						Page No. 5 of 5			
Location: Independence, Kansas						Start Date: 2/25/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/27/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :						Total Boring Depth: 95'		Hole Diameter:	
Initial Water Level:						Surface Casing Depth: 35'		Inspector (s): MFM	
Static Water Level:						Well Depth: 95'		Company: Schreiber, Yonley & Associates	
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
81					SHALE (Cherryvale Formation): gray, thinly laminated				
82									
83									
84									
85									
86									
87									
88									
89									
90					LIMESTONE (Cherryvale Formation): light gray				
91									
92									
93									
94									
95									
96									
97									
98									
99									
100					Total depth at 95 feet.				
Notes:									



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LOG OF TEST BORING

Client:		Project No:		070113		Boring / Well No.		OLGW-7D	
Project: Heartland Cement Company						Page No. 1 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 80'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 50'			Inspector (s): MFM			
Static Water Level:			Well Depth: 80'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18					Auger refusal at 18'				
19					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
20					Air rotary drilling				
Notes: 7" steel casing set from 0-31.5' BGS, 5 & 1/2" steel casing set from 0-50' BGS. 2-inch PBC screen set from 65'-80' BGS, riser set from 3' AGS to 65' BGS, sand placed from 50'-80' BGS, surface casings sealed with neat cement.									



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LOG OF TEST BORING

Client:				Project No: 070113		Boring / Well No. OLGW-7D			
Project: Heartland Cement Company						Page No. 2 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 80'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 50'			Inspector (s): MFM			
Static Water Level:			Well Depth: 80'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
22									
23									
24									
25									
26									
27									
28									
29									
30									
31					7" steel casing set and cemented from ground surface to 31.5'				
32									
33									
34									
35									
36									
37									
38									
39									
40									
Notes:									



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LOG OF TEST BORING

Client:				Project No: 070113		Boring / Well No. OLGW-7D			
Project: Heartland Cement Company						Page No. 3 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 80'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 50'			Inspector (s): MFM			
Static Water Level:			Well Depth: 80'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
41					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53					LIMESTONE (Cherryvale Formation): light gray, occasional shale partings				
54									
55									
56									
57									
58					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
59									
60									
Notes:									



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LOG OF TEST BORING

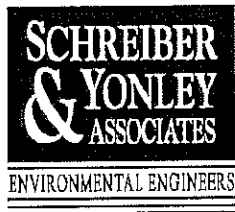
Client:					Project No: 070113		Boring / Well No. OLGW-7D			
Project: Heartland Cement Company							Page No. 4 of 4			
Location: Independence, Kansas					Start Date: 3/3/2009					
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009				
Drilling Contractor: Pratt Environmental Well Services							Sample Method:			
Drill Rig: Stardrill 300										
Water Encountered ? :					Total Boring Depth: 80'		Hole Diameter:			
Initial Water Level:					Surface Casing Depth: 50'		Inspector (s): MFM			
Static Water Level:					Well Depth: 80'		Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.	
61					SHALE (Cherryvale Formation): gray, tight.					
62										
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										
76										
77										
78										
79										
80					Total Depth at 80 feet.					
Notes:										



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LOG OF TEST BORING

Client:		Project No: 070113		Boring / Well No. OLGW-9D					
Project: Heartland Cement Company				Page No. 1 of 4					
Location: Independence, Kansas				Start Date: 3/3/2009					
Surface Elevation:		Top of Casing Elevation:		Completion Date: 3/5/2009					
Drilling Contractor: Pratt Environmental Well Services				Sample Method:					
Drill Rig: Stardrill 300									
Water Encountered ? :		Total Boring Depth: 80'		Hole Diameter:					
Initial Water Level:		Surface Casing Depth: 40'		Inspector (s):					
Static Water Level:		Well Depth: 80'		Company: Schreiber, Yonley & Associates					
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
Notes: 7" steel casing set from 0-29' BGS, 5 & 1/2" steel casing set from 0-40' BGS. 2-inch PBC screen set from 65'-80' BGS, riser set from 3' AGS to 65' BGS, sand placed from 50'-80' BGS, bentonite from 40'-50' BGS, surface casings sealed with neat cement.									



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LOG OF TEST BORING

Client:			Project No: 070113			Boring / Well No. OLGW-9D			
Project: Heartland Cement Company						Page No. 2 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 80'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 40'			Inspector (s):			
Static Water Level:			Well Depth: 80'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
22									
23									
24									
25									
26									
27									
28					Auger refusal at 29'				
29					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
30									
31									
32									
33									
34									
35	29-39		> 90%		Continuous core from 29 to 39'				
36									
37									
38									
39									
40					Air rotary drilling from 39' to 80' with 4 & 7/8" tri-cone bit				
Notes:									



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LOG OF TEST BORING

Client:		Project No: 070113		Boring / Well No. OLGW-9D	
Project: Heartland Cement Company				Page No. 3 of 4	
Location: Independence, Kansas				Start Date: 3/3/2009	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 3/5/2009	
Drilling Contractor: Pratt Environmental Well Services				Sample Method:	
Drill Rig: Stardrill 300					
Water Encountered ? :		Total Boring Depth: 80'		Hole Diameter:	
Initial Water Level:		Surface Casing Depth: 40'		Inspector (s):	
Static Water Level:		Well Depth: 80'		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
41					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57					LIMESTONE (Cherryvale Formation): light gray, occasional shale partings				
58									
59									
60									

Notes:



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LOG OF TEST BORING

Client:		Project No:		070113		Boring / Well No.		OLGW-9D	
Project: Heartland Cement Company						Page No. 4 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :						Total Boring Depth: 80'		Hole Diameter:	
Initial Water Level:						Surface Casing Depth: 40'		Inspector (s):	
Static Water Level:						Well Depth: 80'		Company: Schreiber, Yonley & Associates	
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
61					LIMESTONE (Cherryvale Formation): light gray, occasional shale partings				
62					SHALE (Cherryvale Formation): gray, tight.				
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
78									
79									
80					Total Depth at 80 feet.				
Notes:									

WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS	Fraction SW ¼ NE ¼ SE ¼ ¼	Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W
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2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301	Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m
---	--

3 LOCATE WELL WITH AN "X" IN SECTION BOX: N <div style="text-align: center;"> </div> S [-----1 mile-----]	4 DEPTH OF COMPLETED WELL 95 ft. Depth(s) Groundwater Encountered (1) ft. (2) ft. (3) ft. WELL'S STATIC WATER LEVEL 29.81 ft. below land surface measured on mo/day/yr. 3/5/09 Pump test data: Well water was ft. after hours pumping gpm EST. YIELD gpm. Well water was ft. after hours pumping gpm Bore Hole Diameter 10.5/8 in. to .35 ft., and .6 1/4 in. to .95 ft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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5 TYPE OF CASING USED: <input checked="" type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter .7 in. to .38 ft., Diameter .2 in. to .80 ft., Diameter in. to ft. Casing height above land surface .3 in., Weight lbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From .95 ft. to .80 ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From .95 ft. to .75 ft., From ft. to ft. From ft. to ft., From ft. to ft.	6 GROUT MATERIAL: <input type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From .75 ft. to 0 ft., From ft. to ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well FARM FIELD Direction from well Distance from well
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FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0'	28'	Silty Clay: r to y brn; firm; stiff	0'	31.5"	Cement Steel (7")
		moderately plastic; moist	0'	75'	Bentonite (2") PVC
28'	32'	Limestone: lt. gry, shale partings			
32'	72'	Shale: gray, thinly laminated			
72'	78'	Limestone: light gray			
78'	90'	Shale: gray, thinly laminated			
90'	95'	Limestone: light gray			
		OLGW-1D			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/27/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665 This Water Well Record was completed on (mo/day/year) 4/7/09 under the business name of Pratt Well Service, Inc. by (signature) <i>[Signature]</i>	INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of \$5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html .
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WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼		Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W								
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS				Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m										
2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301														
3 LOCATE WELL WITH AN "X" IN SECTION BOX: N <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr><td colspan="2">NW</td><td colspan="2">NE</td></tr> <tr><td>SW</td><td>SE</td><td colspan="2"></td></tr> </table> S -----1 mile-----		NW		NE		SW	SE			4 DEPTH OF COMPLETED WELL 80 ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL 5.47 ft. below land surface measured on mo/day/yr. 3/5/09..... Pump test data: Well water was..... ft. after..... hours pumping..... gpm EST. YIELD..... gpm. Well water was..... ft. after..... hours pumping..... gpm Bore Hole Diameter 10.5/8 in. to 31.5 ft., and 4.7/8 in. to 80 ft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted..... Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
NW		NE												
SW	SE													
5 TYPE OF CASING USED: <input checked="" type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter .7..... in. to 31.5 ft., Diameter .55..... in. to 50 ft., Diameter .2..... in. to .65 ft. Casing height above land surface...3'..... in., Weightlbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From...80..... ft. to ...65..... ft., From ft. to ft. From..... ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From...80..... ft. to ...50..... ft., From ft. to ft. From..... ft. to ft., From ft. to ft.														
6 GROUT MATERIAL: <input checked="" type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From .50..... ft. to .1..... ft., From .1..... ft. to 0 ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well <i>Creek Bottom</i> Direction from well Distance from well														
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS									
0'	18'	Silty Clay: r to y brn; firm; stiff	0	31.5	Cement (7") Steel									
		moderately plastic; moist	0	50	Cement (5.5") Steel									
18'	46'	Shale: gray, planar, thinly bedded	0	50	Bentonite Seal (2") PVC									
46'	51'	Limestone: light gry, oc. shale par												
51'	80'	Shale: gray, tight												
		OLGW-7D												
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 3/5/09..... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665..... This Water Well Record was completed on (mo/day/year) 4/7/09..... under the business name of Pratt Well Service, Inc. by (signature) <i>Pratt Well Service</i>														
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of \$5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html .														

WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼		Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W												
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS				Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m														
2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301																		
3 LOCATE WELL WITH AN "X" IN SECTION BOX: N <div style="text-align: center;"> <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">W</td> <td style="width: 40px; text-align: center;">NW</td> <td style="width: 40px; text-align: center;">NE</td> <td style="width: 20px; text-align: center;">E</td> </tr> <tr> <td></td> <td style="text-align: center;">SW</td> <td style="text-align: center;">SE</td> <td></td> </tr> <tr> <td></td> <td colspan="2" style="text-align: center;">S</td> <td></td> </tr> </table> <p style="text-align: center;">-----1 mile-----</p> </div>		W	NW	NE	E		SW	SE			S			4 DEPTH OF COMPLETED WELL 22 ft. Depth(s) Groundwater Encountered (1) ft. (2) ft. (3) ft. WELL'S STATIC WATER LEVEL 8.51 ft. below land surface measured on mo/day/yr. 2/27/09 Pump test data: Well water was ft. after hours pumping gpm EST. YIELD gpm. Well water was ft. after hours pumping gpm Bore Hole Diameter 8.1/2 in. to 22 ft., and in. to ft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
W	NW	NE	E															
	SW	SE																
	S																	
5 TYPE OF CASING USED: <input type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter 2 in. to 10 ft., Diameter in. to ft., Diameter in. to ft. Casing height above land surface 3 ft in., Weight SCH 40 lbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From 22 ft. to 7 ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From 22 ft. to 5 ft., From ft. to ft. From ft. to ft., From ft. to ft.																		
6 GROUT MATERIAL: <input type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From 5 ft. to 1 ft., From ft. to ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well N/A Direction from well N/A Distance from well N/A																		
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS													
0'	3'	Gravel: Coarse, road pad fill																
3'	8'	Silty Clay: r to y brn; firm; stiff																
		moderately plastic; moist																
	8'	Wet																
8'	22'	Continued Silty Clay to TD of 22'																
		OLGW-8																
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/24/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 865 This Water Well Record was completed on (mo/day/year) 4/7/09 under the business name of Pratt Well Service, Inc. by (signature) <i>Pratt Well Service, Inc.</i>																		
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WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

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WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼	Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W																
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS			Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m																		
2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301																					
3 LOCATE WELL WITH AN "X" IN SECTION BOX: N <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="width: 20px;">W</td> <td style="width: 20px;">NW</td> <td style="width: 20px;">NE</td> <td style="width: 20px;">E</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>SW</td> <td>SE</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table> </div> S <div style="text-align: center;"> </div>		W	NW	NE	E						SW	SE						4 DEPTH OF COMPLETED WELL 80 ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL 8.45 ft. below land surface measured on mo/day/yr. 3/5/09 Pump test data: Well water was ft. after hours pumping gpm EST. YIELD gpm. Well water was ft. after hours pumping gpm Bore Hole Diameter 10 5/8 in. to 39 ft., and 4 7/8 in. to 80 ft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
W	NW	NE	E																		
	SW	SE																			
5 TYPE OF CASING USED: <input checked="" type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter 7 in. to 29 ft., Diameter 5 1/2 in. to 0-40' ft., Diameter 2" in. to .65 ft. Casing height above land surface 3' in., Weight SCH 40 lbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From 80 ft. to 65 ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From 80 ft. to 50 ft., From ft. to ft. From ft. to ft., From ft. to ft.																					
6 GROUT MATERIAL: <input checked="" type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From (7")-0 ft. to (7")-29 ft., From (5.5")-0 ft. to (5.5")-40 ft., From (2")-65 ft. to (2")-1' ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well Creek Bottom Direction from well Distance from well																					
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS																
0'	29'	Silty Clay: r to y brn; firm; stiff	0	29'	Cement (7") Steel																
		moderately plastic; moist	0	40'	Cement (5.5") Steel																
29'	57'	Shale: gray, planar, thinly bedded	0	65'	Bentonite (2") PVC																
57'	62'	Limestone: light gry, oc. shale par																			
62'	80'	Shale: gray, tight																			
		OLGW-9D																			
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 3/5/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 865 This Water Well Record was completed on (mo/day/year) 4/7/09 under the business name of Pratt Well Service, Inc. by (signature) <i>[Signature]</i>																					
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of \$5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html .																					

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Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS			Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m										
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3 LOCATE WELL WITH AN "X" IN SECTION BOX: N <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 25%;">NW</td> <td style="width: 25%;">NE</td> <td style="width: 25%;">SE</td> <td style="width: 25%;">SW</td> </tr> <tr> <td colspan="4" style="height: 40px;"> <div style="position: relative; width: 100%; height: 100%;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black;"></div> </div> </td> </tr> </table> S -----1 mile-----		NW	NE	SE	SW	<div style="position: relative; width: 100%; height: 100%;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black;"></div> </div>				4 DEPTH OF COMPLETED WELL 19.5 ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL 8.29 ft. below land surface measured on mo/day/yr. 2/27/09 Pump test data: Well water was.....ft. after..... hours pumping..... gpm EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm Bore Hole Diameter 8.1/2 in. to 19.5 ft., andin. toft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted..... Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
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6 GROUT MATERIAL: <input type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From 2.5 ft. to .5 ft., From ft. to ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well Direction from well N/A Distance from well N/A													
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS								
0'	3.5'	Gravel: Coarse, road pad fill											
3.5'	18'	Silty Clay: r to v brn; firm; stiff											
		moderately plastic; moist											
	14'	Wet											
18'	19.5'	Auger refusal at 19.5'											
		OLGW-10											
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/24/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665 This Water Well Record was completed on (mo/day/year) 4/7/09 under the business name of Pratt Well Service, Inc. by (signature) <i>Pratt Well Service, Inc.</i>													
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FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS					
0'	21'	Silty Clay: r to y brn; firm; stiff moderately plastic; moist								
21'	38'	Silty Clay: r to y brn; firm; stiff moderately plastic; moist								
	38'	Auger refusal at 38'								
		OLGW-11								
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/24/09..... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665..... This Water Well Record was completed on (mo/day/year) 4/7/09..... under the business name of Pratt Well Service, Inc..... by (signature) <i>[Signature]</i>										
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3 LOCATE WELL WITH AN "X" IN SECTION BOX: N W E -- NW -- -- NE -- -- SW -- -- SE -- S -----1 mile-----		4 DEPTH OF COMPLETED WELL 20 ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL 7.90 ft. below land surface measured on mo/day/yr. 2/27/09..... Pump test data: Well water was.....ft. after..... hours pumping..... gpm EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm Bore Hole Diameter 8 1/2.....in. to 20.....ft., andin. toft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted..... Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
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FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0'	20'	Silty Clay; r to y brn; firm; stiff			
		moderately plastic; moist			
	20'	Auger refusal at 20'			
		OLGW-12			
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/24/09..... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665..... This Water Well Record was completed on (mo/day/year) 4/7/09..... under the business name of Pratt Well Service, Inc. by (signature) <i>[Signature]</i>					
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WELL NLGW-1

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: NEW KILN DUST LANDFILL
 DATE STARTED: 1/22/93
 DATE COMPLETED: 1/22/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 751.96 FT.
 WATER LEVEL: 6.30 FT.
 WEATHER: SUNNY, 45° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	RECOVERY %	HNU (ppm)	SOIL DESCRIPTION	VISUAL CONTAM.					ODOR	LITHOLOGY	DEPTH	WELL CONSTRUCTION
				color, density, SOIL, admixtures, moisture, other notes, ORIGIN	NONE	STAIN	SHEEN	HEAVY	NONE	SLIGHT	MODERATE	STRONG	
0-5	augered	50	0	Dark brown loose silty CLAY, trace sand and organics, moist grading to light to dark brown, compact									
5-10	augered	30	0	Light brown to orange-brown compact CLAY, trace fine sand, dry									
10-15	augered	20	0	orange to light brown, trace silt									
15-20	augered	25	0	grading to orange-brown compact silty CLAY and fine SAND saturated at 16± ft.									
20-25	augered	25	0	light brown to orange, saturated									
				grading to weathered bedrock (limestone)									
				Total Depth 25± ft.									
				Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									

ATLANTIC

WELL NLGW-2

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: NEW KILN DUST LANDFILL
 DATE STARTED: 1/21/93
 DATE COMPLETED: 1/21/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 759.25 FT.
 WATER LEVEL: 16.49 FT.
 WEATHER: OVERCAST, 30° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLDWS PER 6"	RECOVERY %	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixtures, moisture, other notes, ORIGIN	VISUAL CONTAM.			ODOR			LITHOLOGY	DEPTH	WELL CONSTRUCTION
					NONE	STAIN	SHEEN	HEAVY	NONE	SLIGHT	MODERATE	STRONG	
0-5	augered	0	0	Augered through turf, medium sand and gravel, cobbles, and fractured boulders just below surface									
5-10	augered	60	0	Light brown fine SAND and SILT, wet Black silty CLAY, trace organics									
10-15	augered	100	0	slightly moist									
15-20	augered	100	0	Dark brown CLAY, trace gravel									
20-25	augered	100	0	Brown to dark brown CLAY with silt, trace sand, slightly moist									
25-30	augered	100	0	grading to brown, increasing sand content									
30-35	augered	90	0	wet at 31.5± ft.									
				fractured stone/weathered bedrock (limestone) 34.5-35± ft.									
				Bedrock (limestone) at 35± ft.									
				Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									

ATLANTIC

WELL NLGW-3

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: NEW KILN DUST LANDFILL
 DATE STARTED: 1/22/93
 DATE COMPLETED: 1/22/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 757.05 FT.
 WATER LEVEL: 15.52 FT.
 WEATHER: SUNNY, 38° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixtures, moisture, other notes, DRIGIN	VISUAL CONTAM.						ODOR NONE SLIGHT MODERATE STRONG	LITHOLOGY	DEPTH	WELL CONSTRUCTION
					NONE	STAIN	SHEEN	HEAVY	NONE	SLIGHT	MODERATE	STRONG		
0-5	augered	0	0	Augered through turf, clayey silt, gravel, cobbles, and organics grading to grayish-black silty CLAY, trace sand and gravel									0	
5-10	augered	100	0	grading to black									5	
10-15	augered	50	0										10	
15-20	augered	100	0	grading to dark brown, increasingly moist beginning at 16 ft. water at 18+ ft.									15	
20-25	augered	100	0	Brown compact silty CLAY and fine SAND, gravel, moist to wet throughout spoon									20	
				Augered to 27+ ft.									25	
				Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									30	
													35	

ATLANTIC

APPENDIX B

MONITORING WELL INSPECTION LOG

MONITORING WELL INSPECTION LOG

SITE: _____

Sampling Event:_____

Completed By:_____

[illegible]

APPENDIX C

FIELD PROCEDURES FOR COLLECTING GROUNDWATER SAMPLES

FIELD PROCEDURES FOR COLLECTING GROUNDWATER SAMPLES

1.0 PROCEDURE

The following procedure describes the logistics, chain of events, collection technique, and documentation requirements for collecting groundwater samples designated for chemical analysis.

1.1 Selection of Sampling Locations

Groundwater samples will be obtained from the identified groundwater wells proposed to be sampled during the groundwater monitoring activities, as specified in the Groundwater Monitoring Plan for SWMU 11.

1.2 Equipment List

The following items are to be considered a minimum listing of required field equipment for collecting groundwater samples.

- water level indicator;
- water quality meters with calibration standards (pH meter, temperature gauge, specific conductivity meter, and turbidity meter);
- submersible pump (associated equipment) or disposable bailers;
- a field notebook and indelible pen;
- sample bottle labels;
- chain-of-custody forms; and
- sample containers.

1.3 Water Level Measurement

Prior to the extraction of any groundwater, the depth-to-water shall be measured to the nearest 0.01 foot using an electronic water level indicator. Water level measurements from the group of wells at a facility will be collected within a 24-hour period.

- A reference point will be made at the top of the well casing using a waterproof marker to use as a reference point for all present and future water level measurements.
- The casing cap will then be removed and the well I.D. number, time of day, elevation (top of casing), and the date should be noted on the groundwater data sheets.
- The water level indicator will then be turned on and lowered into the well until a beep is heard.
- The distance from the water surface to the reference point of the well casing will be measured and recorded on the groundwater data sheet.
- The total depth of the well will be measured (at least twice to confirm measurement) and recorded on the groundwater data sheet.
- The water level indicator will be removed from the well and rinsed with Alconox® and distilled water.

1.4 Well Development Meter Calibration

Field testing equipment will be calibrated per manufacturer instructions prior to beginning its use on each day.

1.5 Well Purging

The well(s) will be purged utilizing a dedicated disposable bailer or a low-flow submersible pump. If a pump is to be utilized, the pumping rate will be limited to 100 ml/min or less (EPA Ground Water Handbook, EPA/625/6-87/016, dated March 1987). Groundwater will be removed until field parameters stabilize to $\pm 10\%$ over at least two successive well volumes pumped (EPA Ground Water Handbook, EPA/625/6-87/016, dated March 1987), a maximum of five (5) well volumes have been removed, or until the well is purged dry, whichever comes first.

If only a dedicated disposable bailer is utilized to develop the wells, decontamination procedures are not required. If a submersible pump is used to purge or develop the wells, the pump will be decontaminated prior to and after use at each well. These procedures will consist of scrubbing with Alconox® detergent, then rinsing in tap water, followed by a deionized-water rinse.

Field parameters will be obtained for each volume of water removed during purging and development activities and will consist of temperature, specific conductivity, and pH. The field parameters will be recorded on well development forms.

1.6 Sampling Procedures

The wells will be sampled after they recover to a minimum of 90% of the water level prior to development. The groundwater wells will not be purged if sampling occurs within 48 hours of development. If sampling occurs after 48 hours, the wells will be purged.

If required, purging activities will be consistent with development procedures provided in Section 1.5. Field parameters will be obtained for each volume of water removed during purging activities and will consist of temperature, specific conductivity, pH, and turbidity. The field parameters will be recorded on the well development forms.

- Prior to collecting any water samples, a waterproof sample label will be placed on each container and will specify the following:
 - sample number
 - date
 - time
 - preservative
 - project number
 - collector's initials
- A waterproof ink pen will be used to record the data.
- The sample bottles will be filled directly from the pump or bailer.
- Jars will then be filled directly from the pump or bailer. Overflowing containers with preservatives will be avoided.
- Samples collected for metal analysis will be field-filtered. Field-filtering will consist of utilizing a twelve (12)-volt DC battery-powered peristaltic pump, tygon tubing, and

disposable 0.45-micron filter cartridge. The groundwater sample is pumped at a flow of less than one hundred (100) milliliters per minute directly from the monitoring well or clean, disposable aliquot container through the peristaltic pump. The filter is placed in line on the high-pressure (discharge) side of the pump. The filtered sample flows directly into the laboratory-supplied sample container from the tygon tubing. New tubing will be used at each sample location, or the tubing will be decontaminated between sample locations by cleaning the tubing with an Alconox®/water mix and rinsing with deionized water.

- Place all samples into a sample shipping container; cool with ice and fill out the chain-of-custody form.
- A groundwater sampling data sheet will be filled out and will include, at a minimum, the following data:
 - sample identification number;
 - location of the sample;
 - time and date of sampling;
 - personnel performing task;
 - depth to water table, reference mark and casing(s) stick-up;
 - amount evacuated from well and device used for evacuation;
 - visual or sensory description of the sample;
 - weather conditions both present and previous to sampling; and
 - other pertinent observations.
- Samples will be packed for shipping in rigid, insulated (if preserved at 4°C) shipping containers, and immobilized and cushioned in the packing container to prevent breakage.

1.7 QA/QC Samples

QA/QC samples will be collected in accordance with the QAPP. Rinsate blanks will be created by running distilled/deionized water over decontamination sampling equipment to test for residual decontamination. The water blank will be collected in sample containers for handling, shipping, and analysis. The rinsate blanks will be treated identical to the samples collected that day.

Trip blanks are not required since no VOCs are being analyzed.

Field duplicates are field samples taken from one location and divided into separate containers. They will be treated as separate, independent samples through the remaining sampling and analysis chain.

Matrix spike/matrix spike duplicates are field samples that are spiked in the laboratory with a known concentration of target analytes to verify percent recoveries. Sufficient samples will be collected in the field to provide for the matrix spike and matrix spike duplicate samples.

ATTACHMENT A-3
PROPERTY RECORD

Print Page

These Links May Require Adobe Acrobat Reader, Click [here](#) to Download it.[View Sketch](#) --- [Back to Search Page](#) --- [Home](#)**The Parcel Number for this Property is 063-099-32-0-00-00-007.00-0****Quick Ref ID: 7837****Owner Information**

Owner Name	HEARTLAND CEMENT CO
Address	100 BRODHEAD RD #STE 230 BETHLEHEM, PA 18017-8989

Property Situs Address

Address	1765 LIMESTONE LN, Independence, KS 67301
---------	---

Land Based Classification System

Function	Gypsum / plaster / concrete products mfg
Activity	Primarily plant or factory-type activities
Ownership	Private-fee simple
Site	Developed site - with buildings

General Property Information

Prop Class	Commercial & Industrial - C
Living Units	
Zoning	
Neighborhood	127.H
Tax Unit Group	035

Property Factors

Topography	Level - 1
Utilities	All Public - 1
Access	Paved Road - 1
Fronting	Residential Street - 4
Location	Industrial Site - 8
Parking Type	Off Street - 1
Parking Quantity	Adequate - 2
Parking Proximity	On Site - 3
Parking Covered	
Parking Uncovered	

2018 Appraised Value

Class	Land	Building	Total
Agricultural Use - A	42,290	0	42,290
Commercial & Industrial - C	359,500	716,580	1,076,080
Total	401,790	716,580	1,118,370

Tract Description

INDEPENDENCE TOWNSHIP, S32, T32, R16, ACRES 350.4, S 1485' SW4; E/2 SEC S US HWY 160 & W RIVER; LESS R/W SECTION 32 TOWNSHIP 32 RANGE 16 Deed Book/Page 622 /689 520 /072 517 /562 490 /428 421 /527 405 /407 405 /406 391 /657 386 /421 386 /100 385 /344

Deed Information

Book1	Page1	Book2	Page2	Book3	Page3	Book4	Page4
674	1219	674	1219	622	689		

Market Land Information

Method	Type	AC/SF	Eff FF	Depth	D-Fact	Inf1	Fact1	Inf2	Fact2	Ovrd	Class	Value Est
--------	------	-------	--------	-------	--------	------	-------	------	-------	------	-------	-----------

Acre	Primary Site - 1	64.1										199,300
Acre	Undeveloped - 6	79.8										79,800
Acre	Undeveloped - 6	80.4										80,400

Agricultural Land

Ag Type	Ag Acres	Soil Unit	Irr Type	Well Depth	Acre Feet	Acre Ft/Ac	Adj Code	Govt Prog	Base Rate	Adj Rate	Ag Value
Dry Land	29.1	8679				0			297	297	8,640
Dry Land	11.9	8991				0			283	283	3,370
Dry Land	10.8	8991				0			283	283	3,060
Dry Land	45	8151				0			347	347	15,620
Dry Land	29.3	8302				0			396	396	11,600

Ag Land Summary

Dry Land Acres	0
Irrigated Acres	0
Native Grass Acres	0
Tame Grass Acres	0
Total Ag Acres	126.1
Total Ag Use Value	42,290
Total Ag Market Value	352,400

General Commercial Building Information

General Building Information	
LBCS Structure Code	Heavy industrial structures and facilities
Bldg No.	3
Building Name	PACK HOUSES #35--#38
Identical units	1
No. of Units	
Unit Type	
MS Mult	
MS Zip	

Apartment Data								
	1	2	3	4	5	6	7	8
Units								
BR Type								
Baths								

Commercial Building Sections & Basements																					
Sec	Occupancy	MSCIs	Rank	Yr Blt	Eff Yr	Levels	Stories	Area	Perim	Hgt	Phys	Func	Econ	OVR%	Rsn	Inc Use	Net Area	Cls	RCN	% Gd	Value
1	Industrials, Light Mftg.	C	1.00	1905		01/01		2,268	150	40	2	2				045			389,950	12	46,790
1	Industrials, Light Mftg.	C	1.00	1905		01/01		2,184	188	48	2	2				045			144,360	12	17,320
2	Industrials, Light Mftg.	C	1.00	1905		01/01		2,436	116	22	2	2				045			87,380	12	10,490
2	Industrials, Light Mftg.	C	1.00	1905		02/02		5,082	284	18	2	1				045			174,060	6	10,440
701	Industrials, Light Mftg.	C	1.00			1		3,654	258	12						045					

Commercial Building Section Components							
Sec	Code	Units	Pct	Size	Other	Rank	Year
1	Canopy, Retail Wood Frame	1000					
1	Canopy, Retail Wood Frame	1800					
1	Concrete, Precast Panels		100				
1	No HVAC		100				
1	Concrete, Precast Panels		100				
1	No HVAC		100				
2	Concrete, Precast Panels		100				
2	No HVAC		100				
2	Concrete, Precast Panels		100				
2	No HVAC		100				

Other Building Improvements																					
Id	Occupancy	MSCIs	Rank	Qty	Yr Blt	Eff Yr	LBCS	Area	Perim	Hgt	Dimensions	Stories	Phys	Func	Econ	OVR%	Rsn	Cls	RCN	% Gd	Value
98	Site Improvements	C	2.00	1	1950			10		8		1	2	3					56,890	20	11,380
02	Site Improvements	C	2.00	1	1956			10		8		1	2	3					56,890	20	11,380
05	Site Improvements	C	2.00	1	1950			10		8		1	2	3					56,890	20	11,380
07	Site Improvements	D	2.00	1	1970			10		8		1	2	2					3,260	16	520
08	Residential Garage - Detached	D	2.00	1	1905			1240		8	62 X 20	1	2	1					25,560	11	2,810

Other Building Improvement Components							
Id	Code	Units	Pct	Size	Other	Rank	Year
98	Truck Scales, 60 tons	1		10			
02	Truck Scales, 60 tons	1		10			
05	Truck Scales, 60 tons	1		10			
07	Storage Bldg, Wood	149		10			

Building 2

General Building Information	
LBCS Structure Code	Office building (low rise 1-4 stories)
Bldg No.	6
Building Name	OFFICE
Identical units	1
No. of Units	
Unit Type	
MS Mult	
MS Zip	

Apartment Data								
	1	2	3	4	5	6	7	8
Units								
BR Type								
Baths								

Commercial Building Sections & Basements																					
Sec	Occupancy	MSCIs	Rank	Yr Blt	Eff Yr	Levels	Stories	Area	Perim	Hgt	Phys	Func	Econ	OVR%	Rsn	Inc Use	Net Area	Cls	RCN	% Gd	Value
1	Office Building	D	1.00	2009		01/01		3,600	240	9	3	3				082			249,010	68	169,330

Commercial Building Section Components							
Sec	Code	Units	Pct	Size	Other	Rank	Year
1	Stud -Hardboard Siding		100				
1	Warmed and Cooled Air		100				

Other Building Improvements																					
Id	Occupancy	MSCIs	Rank	Qty	Yr Blt	Eff Yr	LBCS	Area	Perim	Hgt	Dimensions	Stories	Phys	Func	Econ	OVR%	Rsn	Cls	RCN	% Gd	Value
90	Site Improvements	D	2.00	1	1940			10		8	23 X 19	1	2	2					9,570	16	1,530
95	Site Improvements	D	2.00	1	1905			10		8	20 X 9	1	2	1					3,940	11	430
99	Site Improvements	D	2.00	1	1940			10		8		1	1	1					16,290	9	1,470

Other Building Improvement Components							
Id	Code	Units	Pct	Size	Other	Rank	Year
90	Storage Bldg, Wood	437		10			
95	Storage Bldg, Wood	180		10			
99	Storage Bldg, Wood	744		10			

Building 3

General Building Information	
LBCS Structure Code	Office building (low rise 1-4 stories)

Bldg No.	7														
Building Name	OLD GAURD SHACK														
Identical units	1														
No. of Units															
Unit Type															
MS Mult															
MS Zip															

Apartment Data								
	1	2	3	4	5	6	7	8
Units								
BR Type								
Baths								

Commercial Building Sections & Basements																						
Sec	Occupancy	MSCIs	Rank	Yr Blt	Eff Yr	Levels	Stories	Area	Perim	Hgt	Phys	Func	Econ	OVR%	Rsn	Inc Use	Net Area	Cls	RCN	% Gd	Value	
1	Office Building		S	1.00	1940		01/01		227	66	8	1	1				084			16,650	3	500

Commercial Building Section Components							
Sec	Code	Units	Pct	Size	Other	Rank	Year
1	Canopy, Retail Wood Frame	25				1.00	
1	No HVAC		100				
1	Single -Metal on Steel Frame		100				

Building 4	
General Building Information	
LBCS Structure Code	Warehouse, prefab
Bldg No.	1
Building Name	REINCO
Identical units	1
No. of Units	
Unit Type	
MS Mult	
MS Zip	

Apartment Data								
	1	2	3	4	5	6	7	8
Units								
BR Type								
Baths								

Commercial Building Sections & Basements																						
Sec	Occupancy	MSCIs	Rank	Yr Blt	Eff Yr	Levels	Stories	Area	Perim	Hgt	Phys	Func	Econ	OVR%	Rsn	Inc Use	Net Area	Cls	RCN	% Gd	Value	
1	Storage Warehouse		S	1.00	1992		01/01		3,784	260	16	3	3				084			112,410	41	46,090
2	Office Building		S	1.00	1992		01/01		1,300	126	10	3	3				082			155,310	42	65,230

Commercial Building Section Components							
Sec	Code	Units	Pct	Size	Other	Rank	Year
1	Canopy, Retail Wood Frame	420					
1	No HVAC		100				
1	Porch, Open Slab	1160					
1	Single -Metal on Steel Frame		100				
1	Storage Bldg, Wood	140					
2	Canopy, Retail Wood Frame	1700					
2	Loading Dock, Concrete	450					
2	Loading Truckwell, Concrete	1700					
2	Single -Metal on Steel Frame		100				
2	Warmed and Cooled Air		100				

Other Building Improvements																					
Id	Occupancy	MSCIs	Rank	Qty	Yr Blt	Eff Yr	LBCS	Area	Perim	Hgt	Dimensions	Stories	Phys	Func	Econ	OVR%	Rsn	Cls	RCN	% Gd	Value
91		D	2.00	1	1992			10		8	50 X 26	1	3	3					40,480	25	10,120

Parcel Search powered by THOMSON REUTERS

ATTACHMENT A-4
AERIAL PHOTOGRAPHS



Figure 1: 2015 Google Earth image of Buzzi Unicem USA (KSD980739999) site.



Figure 2: 2013 Google Earth image of Buzzi Unicem USA (KSD980739999) site.



Figure 3: 2012 Google Earth image of Buzzi Unicem USA (KSD980739999) site.



Figure 4: 2010 Google Earth image of Buzzi Unicem USA (KSD980739999) site.

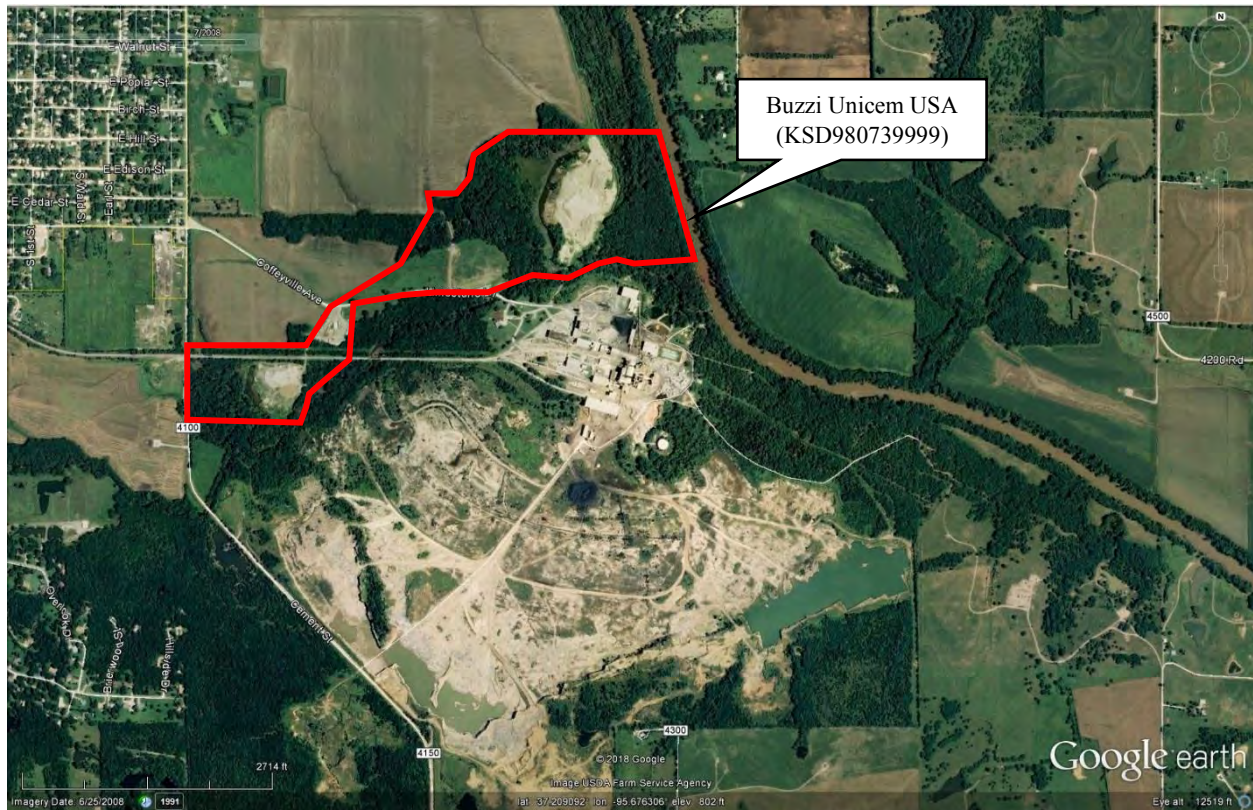


Figure 5: 2008 Google Earth image of Buzzi Unicem USA (KSD980739999) site.



Figure 6: 2006 Google Earth image of Buzzi Unicem USA (KSD980739999) site.



Figure 7: 2005 Google Earth image of Buzzi Unicem USA (KSD980739999) site.

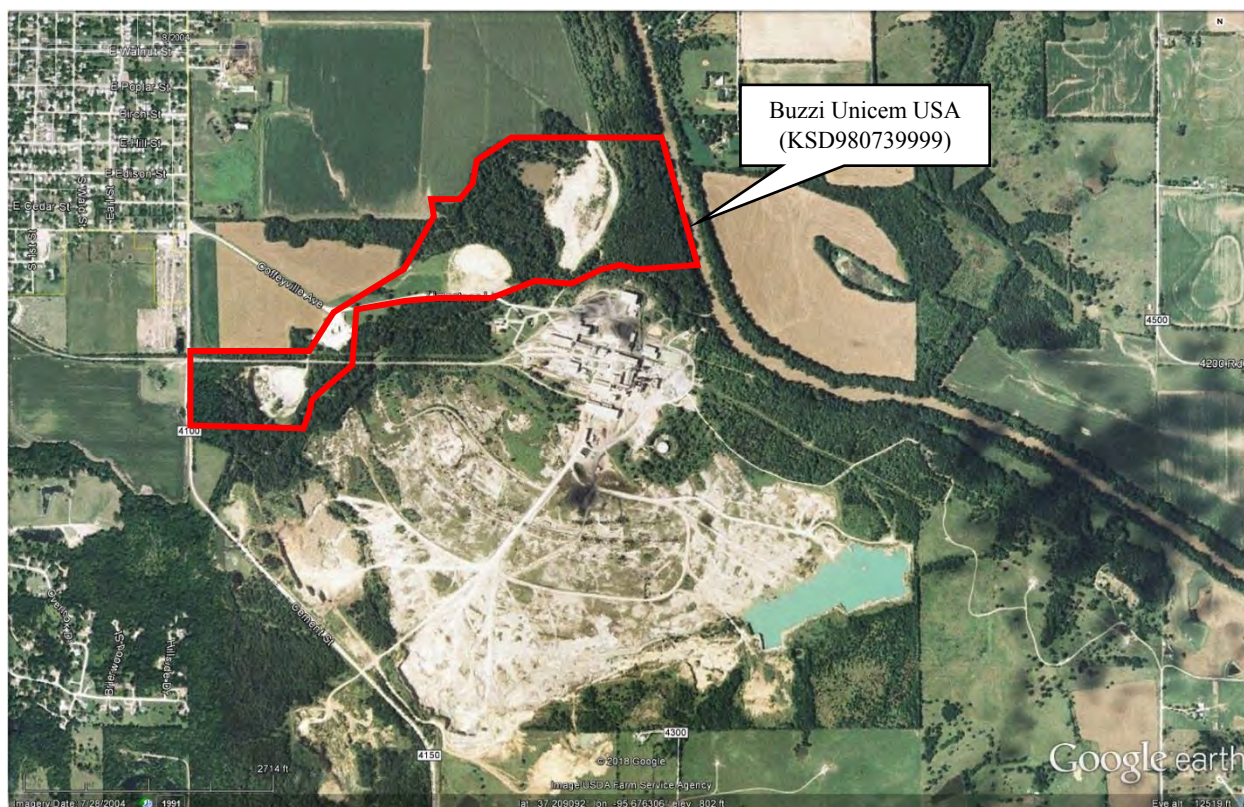


Figure 8: 2004 Google Earth image of Buzzi Unicem USA (KSD980739999) site.



Figure 9: 2003 Google Earth image of Buzzi Unicem USA (KSD980739999) site.



Figure 10: 1991 Google Earth image of Buzzi Unicem USA (KSD980739999) site.

ATTACHMENT A-5
WELL RECORDS

WATER WELL RECORD Form WWC-5 1274704

1274704

Division of Water
Resources App. No.

Well ID

☐ Original Record ☐ Correction ☐ Change in Well Use

[illegible]

Division of Water Resources App. No.

KSA 82a-1212

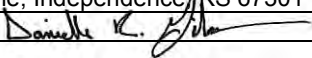
Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

APPENDIX B
SITE VISIT CHECKLISTS



EPA REGION 7 – LTS SITE VISIT GENERAL CHECKLIST

Updated September 23, 2016

FACILITY DETAILS	
EPA ID:	KSD980739999
Facility Name:	Buzzi Unicem USA
Facility Address:	1765 Limestone Lane, Independence, KS 67301
Report Finalized:	Signature:  Date: November 12, 2018

PART I. SITE VISIT INFORMATION			
A. Site Assessment Introduction			
Assessment performed by (Name/Organization):		Danielle Gibson / Tetra Tech	
Site visit date:	October 2, 2018	Start time:	1100
		End time:	1410
Weather conditions (temp., sunny, rain, etc.):		60s, Partly Cloudy	
Site setting (residential, industrial, mixed, etc.):		Industrial, Commercial	
Additional introductory comments:			
Comment: Not applicable (NA)			
B. Site Visit Attendees			
List the site visit attendees in the following table. To add more attendees, click on the bottom row and then the [+] on the bottom right of the row.			
Name	Role/Affiliation	Contact Information	
Danielle Gibson	Site Assessor/Tetra Tech	danielle.gibson@tetrattech.com 402-617-0762	
Wally Snodgrass	Regional Manager	Wallace.Snodgrass@buzziunicemusa.com 620-331-0200 (office), 620-330-1638 (cell)	
Click here to enter text.	Click here to enter text.	Click here to enter text.	
Click here to enter text.	Click here to enter text.	Click here to enter text.	
Describe any concerns or comments from the site visit attendees:			
Comment: NA			
C. Site Use and Activities			
1. What is the current site use?	The property is currently leased to a company involved in the production of fly ash.		
2. Is the current site use consistent with EC/IC restrictions?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	(If No, describe the unauthorized use): Click here to enter text.
3. Has the property transferred ownership or operator since the remedy was established?	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): According to the Montgomery County website, the property is currently owned by Heartland Cement Co. consistent with the Resource Conservation and Recovery Act (RCRA) Hazardous and Solid Waste Amendments (HSWA) Permit dated July 18, 2013. However, Mr. Snodgrass indicated that the current company leasing the property has an interest in purchasing the property.
3a. Provide the name and contact information for the new operator/owner:	NA		
3b. Provide any additional details about the new operator/owner, including activities performed by the new operator/owner	NA		

4. Are there any known plans for future transfer? (if Yes, provide time frame)	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Mr. Snodgrass indicated that the current company leasing the property has an interest in purchasing the property.
5. Is the planned future use consistent with the EC/ICs and restrictions?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Click here to enter text.
6. Is there any new development on an EC/IC area?	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): No new developments were noted during the site visit.
7. Is underlying groundwater used by the site or nearby entities? (If Yes, describe uses)	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): Based on a search of the Kansas Geological Survey Interactive Map, wells at the site are only used for monitoring purposes.
8. Are there Sensitive Receptors (human and/or ecological) at the Site? (e.g. daycare, wetlands, Threatened & Endangered [T&E] species and/or habitat, etc.)	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): During the site visit, Mr. Snodgrass indicated that Heartland Cement (d/b/a Buzzi Unicem USA) has efforts to attract wildlife to their facilities. A former borrow pit to the northeast of the site has been allowed to fill in with water. Fishing is not allowed at this former borrow pit; however, it attracts some wildlife, such as waterfowl. In addition, Mr. Snodgrass indicated they place nest boxes around the facility to attract nesting birds. No other sensitive receptors were noted during the site visit.
D. Climate Change Module			
Have site representatives considered adaptation measures and planned for extreme events or other climate change impacts? What has been done or what adaptation measures does the facility plan on implementing at the site, and why?		No adaptation measures or planning for extreme events were noted during the site visit.	
E. Additional Site Assessment Summary Comments			
Comment: NA			
PART II. COMPILED/TOTAL OVERALL ASSESSMENT			
<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Further Evaluation Needed <input type="checkbox"/> Corrective Measures Needed			



EPA REGION 7 – LTS INSTITUTIONAL CONTROL CHECKLIST

Updated September 23, 2016

FACILITY DETAILS	
EPA ID:	KSD980739999
Facility Name:	Buzzi Unicem USA
Facility Address:	1765 Limestone Lane, Independence, KS 67301
Report Finalized:	Signature: Date: November 12, 2018

PART I. INSTITUTIONAL CONTROLS (IC) REVIEW AND ASSESSMENT

Use this section to site-specific assessment findings on the ICs identified in Parts I and II. If needed, use a separate sheet for each unique IC at this site.

A. Basic Information

1. Common name of this IC? (ex. "Parking Lot A deed restriction")	Resource Conservation and Recovery Act (RCRA) Hazardous and Solid Waste Amendments (HSWA) Permit		
2. What type of IC is this? (Select from drop-down list or write-in)	Other (write in-->)	Or write in if other: RCRA HSWA Permit	
3. Is a map of this IC available?(If Yes, please attach)	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	
4. Is a copy of the IC document (e.g. copy of a deed restriction) available at the site, municipality, state, or on-line? (If Yes, please attach)	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): A copy of the RCRA HSWA Permit is available through EPA. See Attachment A-2 in Appendix A.
5. Is this IC recorded in RCRAInfo correctly (correct date, type, notes)?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Based on available information, ICs appear to be recorded correctly in the RCRA Information (RCRAInfo) Comprehensive Corrective Action Report.
6. Describe the general location of this IC:	The facility is located at 1765 Limestone Lane in Independence, Montgomery County, Kansas.		
7. Additional comments about this IC:	ICs specify that the Permittee shall not or allow others to construct or engage in any activity that could damage or interfere with the low permeability cover, soil layer, and other associated features and appurtenances; use, construct, or install any water extraction well without prior approval; use any portion of the facility property for any other use other than industrial or commercial; and/or excavate or remove any surface or subsurface soil or sediments, in conformance with the Corrective Measures Implementation Work Plan.		

B. Specific IC LTS Information

1. Has the IC specified in the CA Remedy been fully implemented and constructed in accordance with any applicable plans and schedule?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Click here to enter text.
2. Does the IC provide control for the entire extent of contamination (entire site or a specific portion thereof)?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): The RCRA HSWA Permit provides control for the entire facility; however, the Corrective Measures Decision (Attachment 3 to the RCRA HSWA Permit) indicates that the ICs apply only to the Industrial and CKD Landfills (Solid Waste Management Units [SWMU] 10 and 11). EPA has determined No Further Action is necessary for other SWMUs and Areas of Concern (AOC) at the facility.
3. Does the IC eliminate or reduce exposure of all potential receptors to known contamination as intended?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): ICs reduce exposure of potential receptors through land use and activity limitations.

4. Is the IC being maintained as required by the CA Remedy to ensure that the control remains effective?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): The RCRA HSWA Permit is in place to ensure ICs are maintained.
5. Are modifications to the existing IC needed?	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): Click here to enter text.
6. Are additional ICs needed to achieve the protectiveness objectives as intended?	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): Click here to enter text.
7. Does the Remedy require IC assessment? If so, what is the assessment frequency, who performs the assessment, and who receives the assessment report?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Section V of the RCRA HSWA Permit identifies reporting requirements for the facility. This includes annual Corrective Measures Implementation reporting to monitor the effectiveness and performance of the corrective measures and quarterly progress reports. These assessments are to be performed by the Permittee (Heartland Cement Co. d/b/a Buzzi Unicem USA) and are submitted to EPA.
8. Describe and include any additional information about this IC provided by the site representative(s) during the assessment:	NA		

C. Additional IC Summary Comments

Comment: NA

PART II. TOTAL OVERALL ASSESSMENT

☒ Pass

☐ Further Evaluation Needed

☐ Corrective Measures Needed



EPA REGION 7 – PROTECTIVE BARRIER/CAP CHECKLIST

Updated September 23, 2016

FACILITY DETAILS	
EPA ID:	KSD980739999
Facility Name:	Buzzi Unicem USA
Facility Address:	1765 Limestone Lane, Independence, KS 67301
Report Finalized:	Signature: <i>Danielle R. Gibson</i> Date: November 12, 2018

PART I. On-Site LTS Assessment			
Date(s) assessment completed:		October 2, 2018	
Performed by (Name/Organization):		Danielle Gibson / Tetra Tech	
A. On-Site Protective Barrier/Cap Observations			
1. What type of barrier or cap (EC) is this? Are design and as-built plans available? Provide specific details on known construction/as-built specifications.	Engineering controls in place at the facility include caps over the former landfills at solid waste management units (SWMU) 10 and 11. SWMU 10 is referred to as the Industrial Landfill and SWMU 11 is referred to as the Old and New Cement Kiln Dust (CKD) Landfills. Per the Resource Conservation and Recovery Act (RCRA) Hazardous and Solid Waste Amendments (HSWA) Permit, caps over these landfills are to include a low permeability cover over the solid waste and materials disposed of in the SWMUs, followed by a layer of soil. Vegetation is then to be used of a type that will prevent erosion of the soil and not damage the underlying low permeability cover.		
2. Is a map of this EC available? (If yes, please attach)	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): See Attachment A-2 in Appendix A.
3. Is this EC recorded in RCRAInfo correctly (correct date, type, notes)?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Based on available information, the ECs appear to be recorded correctly in the Resource Conservation and Recovery Act Information (RCRAInfo) Comprehensive Corrective Action Report.
4. Are the boundaries of the EC physically and visually prominent enough (i.e., markers/ monuments or fence) to identify the EC location without difficulty? If supporting visual aids are utilized to indirectly identify EC location, then answer is affirmative/YES.	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Boundaries of the landfill caps were easily identified during the site visit, as the caps were elevated above the surrounding terrain.
5. Are warning signs fixed on the fence? See LTS Fence/Signage Checklist for further considerations.	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): No warning signs were observed during the site visit.
6. Does the site security appear to be adequate to protect the EC?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): No site security was observed during the site visit; however, based on a review of the RCRA HSWA Permit, site security does not appear to be a requirement for this facility. The RCRA HSWA Permit states that features and appurtenances shall be designed, installed, and maintained as necessary to prevent trespassers, livestock, or any other activity that may damage the cover. No obvious signs of trespassing were noted during the site visit.
7. Are the dimensions or extent of the EC reasonably consistent with existing legal survey or geographic references?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): The extent of the ECs noted during the site visit appeared reasonably consistent with the legal survey included in the RCRA HSWA Permit.
8. Is the physical condition of the EC consistent with control requirements (i.e., EC surface materials; topography/grade; surface water drainage; vegetation type, extent, and height)?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): All landfill covers included vegetative covers and were properly mounded to allow for proper drainage.

9. Is the EC area maintained and debris-free (noticeable breaches, subsidence, erosional features, stressed vegetation)?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): All landfill covers appeared well maintained and free of debris. Mr. Snodgrass indicated previous issues with erosion on the cap for the Old CKD Landfill; however, it appeared these erosion issues had been addressed and the cover was now under control. One small area of erosion was noted on the cover for the Industrial Landfill; however, this was very minor.
10. Is there physical evidence of EC alternation, damage, or repair? Describe if so.	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): One small area of erosion was noted on the cover for the Industrial Landfill (SWMU 10); however, no other areas of erosion or damage were noted during the site visit. Mr. Snodgrass indicated that when erosion repairs are needed, he will often place a bale of hay at the top of the cap and allow it to roll down the side slope to protect the cap from further erosion, and to allow for revegetation.
11. Is there evidence in on-site facility files of EC alternation, damage, or repair? Describe if so.	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Maintenance records for caps were available in on-site facility files. These records showed mowing and various cap repairs completed by B&L Trenching.
12. Is there evidence of vandalism of the EC?	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): No evidence of vandalism was observed during the site visit.
13. Is the EC maintained as required by the O&M Plan (or agreement developed in accordance with the CA Remedy) to ensure the control remains effective?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): According to the Landfill Cap Maintenance Plan for SWMU 11, semi-annual inspections are to be completed for the landfill caps to minimize the effects of subsidence/consolidation, slope stability, soil cover, vegetation, stormwater management structures, and erosion features. Inspection records were available in on-site files for recent years for the Old and New CKD Landfills (SWMU 11). Inspection records were not available for 2013, 2014, or 2015; however, maintenance records from B&L Trenching were available for these missing years, showing maintenance completed on the caps. No inspection records were available for the Industrial Landfill (SWMU 10); however, the Landfill Cap Maintenance Plan does not include requirements for SWMU 10. Mr. Snodgrass indicated that he routinely inspected the Industrial Landfill cap (SWMU 10). An example of the 2018 inspection records for SWMU 11 are included as Attachment B-1.
14. Have EC repairs/modifications been documented by either the facility or regulatory agency? Are these records available (preferably on a marked up as-built drawing)	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Repairs have been documented by the facility and are available in on-site files in the form of maintenance records from B&L Trenching.
15. Who is responsible for O&M of the EC?	Maintenance of the ECs is the responsibility of the facility.		
16. What is the O&M inspections, assessment, and reporting frequencies?	Inspections of the Old and New CKD Landfill (SWMU 11) caps are to be completed on a semi-annual basis. Other reporting requirements are stated in Section V of the RCRA HSWA Permit. Other reporting requirements include annual Corrective Measures Implementation reports and quarterly progress reports.		
17. Who receives the O&M reports (facility contact or regulatory agency?)	All reports are to be submitted to EPA for review.		

18. Other LTS Assessment documents reviewed:

Comment: NA

GPS Coordinates of the New CKD Landfill (latitude, longitude):

Approximate Peak: 32.21333, -95.68211

Western Edge: 37.21321, -95.68421

Eastern Edge: 37.21348, -95.68088

Southern Edge: 37.21265, -95.68307

GPS Coordinates of the Old CKD Landfill (latitude, longitude):

Approximate Peak: 37.21530, -95.67811

Northern Edge: 37.21683, -95.67834

Eastern Edge: 37.21429, -95.67764

Western Edge: 37.21465, -95.67968

Southern Edge: 37.21330, -95.67873

GPS Coordinate of the Industrial Landfill (latitude, longitude):

Approximate Peak: 37.20988, -95.68953

Northern Edge: 37.21045, -95.68913

Eastern Edge: 37.20933, -95.68890

Western Edge: 37.21012, -95.69064

Southern Edge: 37.20898, -95.68977

PART II. OVERALL ASSESSMENT

☒ **Pass**

☐ **Further Evaluation Needed**

☐ **Corrective Measures Needed**



EPA REGION 7 – LTS WELLS/MITIGATION EQUIPMENT CHECKLIST

Updated September 23, 2016

FACILITY DETAILS	
EPA ID:	KSD980739999
Facility Name:	Buzzi Unicem USA
Facility Address:	1765 Limestone Lane, Independence, KS 67301
Report Finalized:	Signature: <i>Danielle R. Gibson</i> Date: November 12, 2018

PART I. On-Site LTS Assessment			
Date(s) assessment completed:		October 2, 2018	
Performed by (Name/Organization):		Danielle Gibson / Tetra Tech	
A. On-Site Wells/Mitigation Equipment Observations			
1. Does this facility have mitigation (EC) equipment on-site?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	The facility currently includes caps over the three former landfills at solid waste management units (SWMU) 10 and 11. In addition, the facility has an existing monitoring system
2. (Continued from Question #1 above) If so, what type of EC is the equipment associated with?	Physical Cap	Other (add comments): Click here to enter text.	
3. Are the locations of monitoring wells and EC equipment as depicted on existing covenant or control documents?	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): See Figure 3 in the Groundwater Monitoring Plan for SWMU 11 (Attachment B-2). See Attachment B-3 for a map of the wells near the Industrial Landfill (SWMU 10).
4. Are the wells or EC equipment adequately marked and secured (barrier pillars, locks, covers)? (See Part III below for specific well details)	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Wells appeared adequately marked and secured during the site visit. One well, OLGW-7, was missing a lock. Several wells did not include bollards; however, they were in areas where traffic was unlikely.
5. Is the area around wells or EC equipment level, maintained, and debris-free? (See Part III below for specific well details)	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): In general, wells appeared well maintained and free of debris; however, maintenance or repairs may be needed for a few wells. Soil is eroding around monitoring well OLGW-4 into the creek below. Mr. Snodgrass indicated that they will be hiring a contractor to bring in rip rap to stabilize the creek bank. In addition, the stickup for monitoring well OLGW-6 was knocked over. The pad around monitoring well ILGW-3 was damaged.
6. Is there physical evidence of well or EC equipment alternation, damage, repair, or replacement? Describe if so. (See Part III below for specific well details)	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Other (add comments): Well damage was observed at three wells during the site visit as noted above: OLGW-4, OLGW-6, and ILGW-3.
7. Is there physical evidence of fence alternation, damage, repair, or replacement? Describe if so. (see the LTS Fence/Signage Checklist for more considerations)	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): Fencing was not observed during the site visit.
8. Is there evidence in on-site facility files of well or EC equipment alternation, damage, repair, or replacement? Describe if so.	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>	Other (add comments): Monitoring well inspection records were available in on-site facility files. The inspection records were noted on the groundwater sampling forms. Monitoring wells are inspected semi-annually during groundwater sampling events. Only wells that are sampled are inspected.

9. Other LTS Assessment documents reviewed:

Comment:

During a review of on-site files, it was noted that data is missing for all monitoring wells near the Old Cement Kiln Dust (CKD) Landfill from 2012, 2013, 2014, and 2015. Also, according to on-site files IDLW-2 was not sampled in August and October 2013 due to mud covering the well from heavy rains.

PART II. OVERALL ASSESSMENT

☐ Pass

☒ Further Evaluation Needed

☐ Corrective Measures Needed

PART III. Monitoring/Mitigation (EC) Equipment Station Assessment (if applicable)

To add more rows, click the [+] button on the bottom left of the row. Copy and paste cell formatting from previous row.

Monitoring Station Name	Type (pumping well, gas vent, etc.)	Latitude	Longitude	Condition	Photograph Taken
NLGW-1	Monitoring	37.21346	-95.68493	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 20
NLGW-2	Monitoring	37.21265	-95.68307	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 21
NLGW-3	Monitoring	37.21274	-95.68148	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 22
NLGW-4	Monitoring	37.21348	-95.68088	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 23
OLGW-1	Monitoring	37.21723	-95.67965	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 24
OLGW-1D	Monitoring	37.21725	-95.67964	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 25
OLGW-2	Monitoring	NA	NA	Mr. Snodgrass indicated OLGW-2 was abandoned in 2011 or 2012	<input type="checkbox"/> Photo #: NA
OLGW-3	Monitoring	37.21397	-95.67767	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 26
OLGW-4	Monitoring	37.21632	-95.67700	Aboveground, soil around well heavily eroded	<input checked="" type="checkbox"/> Photo #: 27 and 28
OLGW-5	Monitoring	37.21413	-95.67747	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 29
OLGW-6	Monitoring	37.21395	-95.67764	Stickup has been knocked down	<input checked="" type="checkbox"/> Photo #: 30
OLGW-7	Monitoring	37.21370	-95.67760	Aboveground, good condition, missing lock	<input checked="" type="checkbox"/> Photo #: 31

OLGW-7D	Monitoring	37.21367	-95.67760	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 32
OLGW-8	Monitoring	37.21503	-95.67532	Aboveground, good condition, PVC cover as area is prone to flooding	<input checked="" type="checkbox"/> Photo #: 33
OLGW-9	Monitoring	37.21426	-95.67550	Aboveground, good condition, PVC cover as area is prone to flooding	<input checked="" type="checkbox"/> Photo #: 34
OLGW-9D	Monitoring	37.21423	-95.67548	Aboveground, good condition, PVC cover as area is prone to flooding	<input checked="" type="checkbox"/> Photo #: 35
OLGW-10	Monitoring	37.21348	-95.67555	Aboveground, good condition, PVC cover as area is prone to flooding	<input checked="" type="checkbox"/> Photo #: 36
OLGW-11	Monitoring	37.21330	-95.67873	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 37
OLGW-12	Monitoring	37.21465	-95.67968	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 38
ILGW-1	Monitoring	37.21084	-95.69012	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 39
ILGW-2	Monitoring	37.21014	-95.69078	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 40
ILGW-3	Monitoring	37.20880	-95.68965	Aboveground, pad damaged	<input checked="" type="checkbox"/> Photo #: 41 and 42
ILGW-4	Monitoring	37.20922	-95.69012	Aboveground, good condition	<input checked="" type="checkbox"/> Photo #: 43

ATTACHMENT B-1
INSPECTION RECORDS

SWMU 11 KILN DUST LANDFILLS – MONITORING AND MAINTENANCE PROGRAM

INSPECTION FORM

INSPECTOR: Homer Pope DATE: 3-15-18 TIME: 1:00 REVIEWED BY: _____

TEMPERATURE: 70° F WEATHER CONDITIONS: Sunny / Windy REVIEW DATE: _____

SUBSIDENCE/CONSOLIDATION

REGION	EVIDENCE OF CRACKS?	EVIDENCE OF DEPRESSIONS?	EVIDENCE OF SINK HOLES:	EVIDENCE OF PONDING?	OTHER (DESCRIBE BELOW)
New CKD Landfill					
Top of Cover – West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Old CKD Landfill					
Top of Cover – West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

SLOPE STABILITY

REGION	EVIDENCE OF CRACKS?	EVIDENCE OF BLOCK OR CIRCULAR FAILURE?	EVIDENCE OF SEEPS?	OTHER (DESCRIBE BELOW)
New CKD Landfill				
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Old CKD Landfill				
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

SOIL COVER

REGION	EVIDENCE OF SOIL DEPOSITION OR EROSION?	EVIDENCE OF EROSION RILLS/GULLIES?	EVIDENCE OF BURROWING ANIMALS?	OTHER (DESCRIBE BELOW)
New CKD Landfill				
Top of Cover – West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Old CKD Landfill				
Top of Cover – West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

STORMWATER MANAGEMENT STRUCTURES

CHANNELS/LINING

STRUCTURE	EVIDENCE OF EXCESSIVE EROSION, GULLYING, SCOUR, OR UNDERMINING?	EVIDENCE OF SETTLEMENT/ SUBSIDENCE OR DEPRESSIONS?	EVIDENCE OF BREACHING OR BANK FAILURE?	EVIDENCE OF BURROWING ANIMALS?	EVIDENCE OF SEDIMENT BUILD- UP OR OTHER BLOCKAGE?	EVIDENCE OF LINING DETERIORATION, HOLES, RIPS, OR SEPARATION?	EVIDENCE OF LINING DISPLACEMENT?
New CKD Landfill	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Old CKD Landfill	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

OTHER DEFICIENCIES?

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

"RUN-ON" EROSION CONTROL

AREA	ADVERSELY AFFECTING SWMU 11 KILN DUST LANDFILLS:	
New CKD Landfill	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:
Old CKD Landfill	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

ACTION ITEMS

DEFICIENCY	DATE NOTED	ACTION	DATE COMPLETED	COMMENTS

INSPECTOR SIGNATURE: Thomas H. Pope DATE: 3-15-18

REVIEWER SIGNATURE: _____ DATE: _____



**SWMU 11 CKD LANDFILLS
MARCH 2018**



1. Old CKD LF north slope and repaired erosion area.



2. Old CKD LF south slope.

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

**By:
Homer Pope**

**Date:
3/15/18**





3. Old CKD LF east slope and repaired erosion area.



4. Old CKD LF east slope and repaired erosion area.

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

**By:
Homer Pope**

**Date:
3/15/18**





5. Old CKD LF top looking south.



6. Old CKD LF top looking north.

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

**By:
Homer Pope**

**Date:
3/15/18**





7. Old CKD LF west slope and repaired erosion area.



8. New CKD LF top looking west.

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

**By:
Homer Pope**

**Date:
3/15/18**





9. New CKD LF east slope.



10. New CKD LF north slope.

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

**By:
Homer Pope**

**Date:
3/15/18**





11. New CKD west side looking east.



12. New CKD LF south side.

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

**By:
Homer Pope**

**Date:
3/15/18**



SWMU 11 KILN DUST LANDFILLS – MONITORING AND MAINTENANCE PROGRAM

INSPECTION FORM

INSPECTOR: Homer Pope DATE: 8-30-18 TIME: 1:00 REVIEWED BY: _____

TEMPERATURE: 81° F WEATHER CONDITIONS: Cloudy / Periods of rain REVIEW DATE: _____

SUBSIDENCE/CONSOLIDATION

REGION	EVIDENCE OF CRACKS?	EVIDENCE OF DEPRESSIONS?	EVIDENCE OF SINK HOLES:	EVIDENCE OF PONDING?	OTHER (DESCRIBE BELOW)
New CKD Landfill					
Top of Cover – West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Old CKD Landfill					
Top of Cover – West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

SLOPE STABILITY

REGION	EVIDENCE OF CRACKS?	EVIDENCE OF BLOCK OR CIRCULAR FAILURE?	EVIDENCE OF SEEPS?	OTHER (DESCRIBE BELOW)
New CKD Landfill				
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Old CKD Landfill				
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

SOIL COVER

REGION	EVIDENCE OF SOIL DEPOSITION OR EROSION?	EVIDENCE OF EROSION RILLS/GULLIES?	EVIDENCE OF BURROWING ANIMALS?	OTHER (DESCRIBE BELOW)
New CKD Landfill				
Top of Cover – West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Old CKD Landfill				
Top of Cover – West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Top of Cover – South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - West	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - East	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - North	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Side Slope - South	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

STORMWATER MANAGEMENT STRUCTURES

CHANNELS/LINING

STRUCTURE	EVIDENCE OF EXCESSIVE EROSION, GULLYING, SCOUR, OR UNDERMINING?	EVIDENCE OF SETTLEMENT/ SUBSIDENCE OR DEPRESSIONS?	EVIDENCE OF BREACHING OR BANK FAILURE?	EVIDENCE OF BURROWING ANIMALS?	EVIDENCE OF SEDIMENT BUILD- UP OR OTHER BLOCKAGE?	EVIDENCE OF LINING DETERIORATION, HOLES, RIPS, OR SEPARATION?	EVIDENCE OF LINING DISPLACEMENT?
New CKD Landfill	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Old CKD Landfill	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

OTHER DEFICIENCIES?

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

"RUN-ON" EROSION CONTROL

AREA	ADVERSELY AFFECTING SWMU 11 KILN DUST LANDFILLS:	
New CKD Landfill	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:
Old CKD Landfill	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMENT:

MAINTENANCE REQUIRED/COMMENTS/PHOTO LOG

ACTION ITEMS

DEFICIENCY	DATE NOTED	ACTION	DATE COMPETED	COMMENTS

INSPECTOR SIGNATURE: Norman H. Pope DATE: 8-30-18

REVIEWER SIGNATURE: _____ DATE: _____



**SWMU 11 CKD LANDFILLS
AUGUST 2018**



1. Old CKD LF top looking north



2. Old CKD LF top looking south

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

By: H. Pope

Date: 8/30/18





3. Old CKD LF top looking east



4. Old CKD LF top looking west

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

By: H. Pope

Date: 8/30/18





5. Old CKD LF west side slope

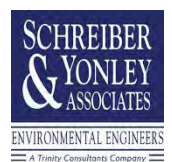


6. Old CKD LF east side slope

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

By: H. Pope

Date: 8/30/18





7. Monitoring well OLGW-10



8. Monitoring well OLGW-5

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

By: H. Pope

Date: 8/30/18





9. New CKD LF top looking north



10. New CKD LF top looking south

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

By: H. Pope

Date: 8/30/18





11. New CKD LF top looking east



12. New CKD LF top looking west

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

By: H. Pope

Date: 8/30/18





13. Monitoring well NLGW-1



14. Monitoring well NLGW-2

**HEARTLAND CEMENT
INDEPENDENCE, KANSAS**

By: H. Pope

Date: 8/30/18



ATTACHMENT B-2
GROUNDWATER MONITORING PLAN

**GROUNDWATER MONITORING PLAN
SWMU 11
(KILN DUST LANDFILLS A & B)**

**HEARTLAND CEMENT COMPANY
dba BUZZI UNICEM USA
INDEPENDENCE, KANSAS**

**SEPTEMBER 2013
Revised November 2015
Revised January 2016
Revised March 2016**

Prepared for:

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 7
AIR AND WASTE MANAGEMENT DIVISION
LENEXA, KANSAS**

SYA Project No. 130150/152602.0176

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APPENDIX A	BORING LOGS AND MONITORING WELL COMPLETION DIAGRAMS
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1.0 INTRODUCTION

Heartland Cement Company, dba Buzzi Unicem USA (Heartland), has prepared this Groundwater Monitoring Plan for Solid Waste Management Unit (SWMU) 11 – Kiln Dust Landfills A & B (aka Old and New CKD Landfills) in accordance with United States Environmental Protection Agency (USEPA) Section III.K.2.d.i Monitoring and Performance Evaluation, as required in Heartland’s recently approved USEPA RCRA/HSWA permit dated July 18, 2013.

Permit condition III.K.2.d.i requires that Heartland submit a Groundwater Monitoring Plan for SWMU 11 and that the Groundwater Monitoring Plan shall include the following:

- Design Plans and Specifications;
- Operation and Maintenance Plan;
- Cost Estimate;
- Sampling and Analysis Plan;
- Quality Assurance Project Plan;
- Recordkeeping Plan;
- Waste Management Plan; and,
- Project Schedule, including provisions for thirty (30) days written advance notice of any field work.

The purpose of the SWMU 11 Groundwater Monitoring Plan is to describe the sampling and analysis procedures such that monitoring results will provide a reliable indication of groundwater quality in the zone(s) being monitored.

2.0 SITE DESCRIPTION AND BACKGROUND

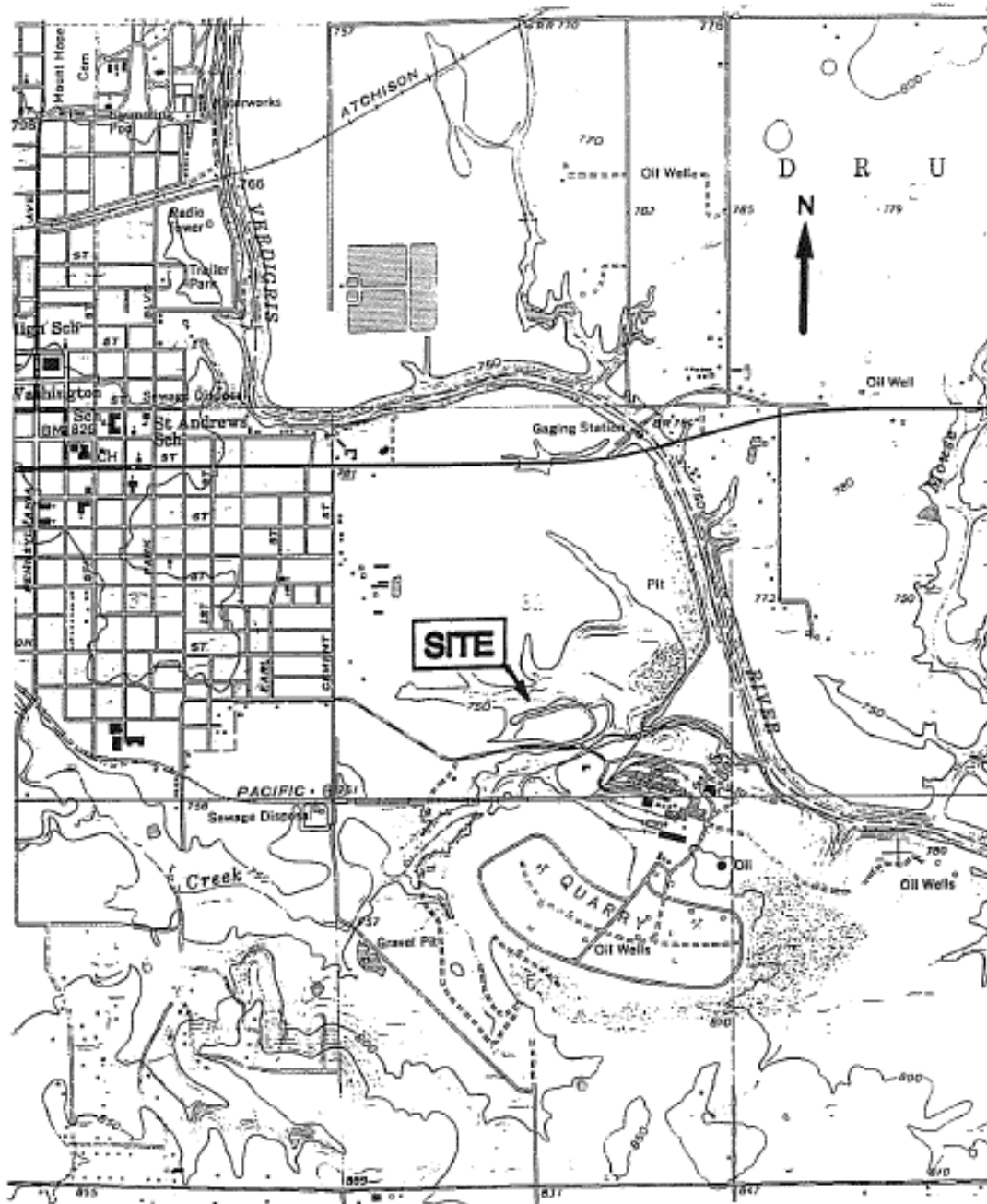
2.1 Location

The Heartland property comprises approximately eleven hundred (1,100) acres located in a rural agricultural area of Montgomery County in southeastern Kansas. The Heartland property adjoins the southeast corner of the City of Independence. The Verdigris River

borders the property to the northeast and east, and some scattered residences are located approximately one-half (0.5) mile southwest of the plant property. Rock Creek, a tributary of the Verdigris River, flows easterly through the Heartland property. The location of the Heartland facility affected by the RCRA permit lies within this property boundary and is provided on Figure 1. The Verdigris River borders the east portion of the facility, and County Road 4100 borders the west portion of the facility. Rock Creek is located to the south of the facility, and farm fields lie to the north. The facility area contains SWMU 11 and SWMU 10 and is approximately 107.7 acres.

SWMU 11 consists of two cement kiln dust (CKD) landfills identified as the Old CKD Landfill and the New CKD Landfill. The Old CKD Landfill is located approximately 500 feet north of the former Heartland plant, adjacent to a rail spur that terminated at the southern end of the landfill limit. The landfill is an irregularly shaped area of generally homogeneous CKD deposits. The Old CKD Landfill comprises approximately 16.8 acres. The location of the Old CKD Landfill is presented in Figure 2.

The New CKD Landfill is located approximately 700 feet west of the plant, adjacent to the facility entrance road. The landfill is an irregularly shaped area consisting of generally homogeneous CKD deposits. The New CKD Landfill comprises approximately 6.4 acres. The location of the New CKD Landfill is presented in Figure 2.



Source: Independence, Kansas; 7.5 Minute Topographic Map

SITE LOCATION MAP				FIGURE 1
HEARTLAND CEMENT COMPANY				SCALE:
INDEPENDENCE, KANSAS				
CHECKED BY:	DRAWN BY:	DATE DRAWN:	DRAWING BY:	REVISION:
	ARS	10/7/99	SITLOC	

**SCHREIBER
& YONLEY
ASSOCIATES**
ENVIRONMENTAL ENGINEERS

Figure 1: Site Location Map



FIGURE 2
SWMU 11 LOCATION MAP
HEARTLAND CEMENT COMPANY
dba BUZZI UNICEM, USA
INDEPENDENCE, KANSAS



2.2 Facility Description/Background

The original cement plant began operations in 1905. The location for the plant was chosen due to the availability of limestone for use as a raw material. Cement operations at the site included quarrying, raw material preparation, cement production, and cement storage/shipping facilities. Quarry and cement production activities were terminated at the Heartland plant in September 2008.

At the time that Heartland utilized hazardous waste-derived fuels for burning during their manufacturing process, they were required to obtain a Part B RCRA permit in order to store these fuels. The permit included a provision to conduct a RCRA Facility Investigation (RFI) and ensure that corrective actions are taken in response to releases from Heartland SWMUs or when releases are suspected. The waste fuel operations at the facility were discontinued in 2000, and clean closure was completed in 2001.

Numerous RFI and follow up activities have taken place at SWMU 11 since 1991 through the present, including the installation and sampling of groundwater monitoring wells at both the Old CKD Landfill area and the New CKD Landfill area. Based on information obtained from the RFIs and groundwater assessment activities, several metals may be leaching from the Old CKD Landfill into the shallow alluvial groundwater within close proximity to the Old CKD Landfill.

These constituents of concern appear to be contained within Heartland's property boundary and pose little health risk to potential downgradient receptors. The closest downgradient domestic well is over one (1) mile away, and is separated from Heartland by the Verdigris River. Bedrock groundwater does not appear to be impacted with excessive levels of constituents of concern because it is confined within a tight, massive shale, and it is not hydraulically connected to the alluvial aquifer. Rock Creek also does not appear to be impacted.

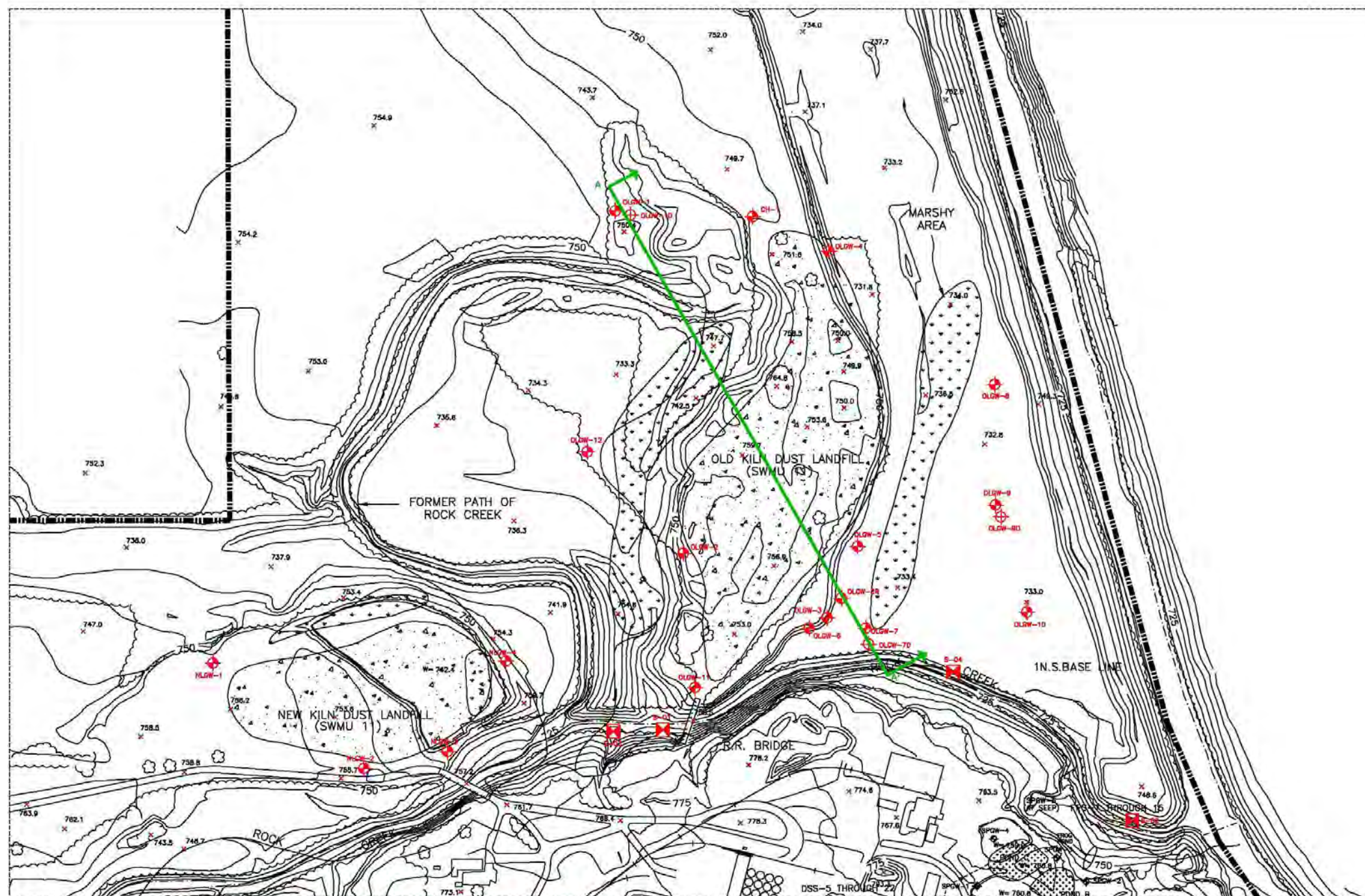
On July 18, 2013, the USEPA issued Heartland a new RCRA/HSWA permit that identified corrective action provisions pertaining to known SWMUs and Areas of Concern (AOCs) at the Heartland facility. Section III.K.2.d.i of the permit requires the development of a groundwater monitoring plan such that Heartland can monitor the effectiveness and performance of the corrective measures and determine any failures of the corrective measures. This Plan addresses groundwater monitoring for SWMU 11 (CKD Landfills) only. The corrective measure selected for this unit includes engineering control specified in III.K.2.a. Capping of the landfill was completed in December 2012, and closure certification was received from Kansas Department of Health in July 2013.

3.0 DESIGN PLANS AND SPECIFICATIONS

Heartland currently has two groundwater monitoring systems in place at SWMU 11. One system monitors groundwater from the Old CKD Landfill, while the other monitors groundwater from the New CKD Landfill. The following sections describe the groundwater monitoring systems currently in place at each CKD landfill.

3.1 Old CKD Landfill Groundwater Monitoring System

The groundwater monitoring system at the Old CKD Landfill consists of twelve (12) alluvial monitoring wells identified as OLGW-1 through OLGW-12, and three (3) bedrock monitoring wells identified as OLGW-1D, OLGW-7D, and OLGW-9D. Table 1 presents monitoring well construction details, while boring logs and monitoring well completion diagrams are contained in Appendix A. The locations of the alluvial and bedrock monitoring wells for the Old CKD Landfill are presented in Figure 3.



- APPROXIMATE MONITORING WELL / COREHOLE LOCATION
- APPROXIMATE BEDROCK MONITORING WELL LOCATION
- SEDIMENT AND SURFACE WATER SAMPLING LOCATIONS
- LINE OF CROSS SECTION

MONITORING WELL AND SAMPLING LOCATION MAP			
HEARTLAND CEMENT COMPANY D/B/A BUZZI UNICEM, USA INDEPENDENCE, KANSAS			
CHECKED BY: DLA	DRAWN BY: WKS/BAH	DATE DRAWN: 03-19-09	DRAWING #: 130150
FIGURE 3			REVISION: 11-9-15
APPROXIMATE SCALE 1" = 300'			

**SCHREIBER
& YONLEY
ASSOCIATES**
ENVIRONMENTAL ENGINEERS

Table 1: Monitoring Well Construction – Old CKD Landfill

Well ID	Date of Construction	Screen Material	Well Diameter (inches)	Well Depth	Top of Screen	Top of Sand	Top of Bentonite	Top of Grout	Top of Casing	Top of Casing Elev. (msl)
				Feet below (-) or above (+) ground surface						
OLGW-1	1/23/1993	Stainless Steel	2	-28	-18	-16	-15	0	+3	755.34
OLGW-2	1/23/1993	Stainless Steel	2	-25	-15	-13	-12	0	+3	748.21
OLGW-3	1/23/1993	Stainless Steel	2	-34.5	-24.5	-22.6	-21.5	0	+3	755.44
OLGW-4	3/24/2004	Sch. 40 PVC	2	-34	-24	-22	-20	0	+3	755.77
OLGW-5	5/25/2004	Sch. 40 PVC	2	-30	-20	-18	-16	0	+3	754.29
OLGW-6	5/25/2004	Sch. 40 PVC	2	-30	-20	-18	-16	0	+3	756.07
OLGW-7	5/25/2004	Sch. 40 PVC	2	-30	-20	-18	-16	0	+3	737.12
OLGW-8	2/24/2009	Sch. 40 PVC	2	-22	-7	-5	-1	0	+3	742.69
OLGW-9	2/24/2009	Sch. 40 PVC	2	-22	-7	-5	-1	0	+3	742.38
OLGW-10	2/24/2009	Sch. 40 PVC	2	-19.5	-4.5	-2.5	-0.5	0	+3	742.37
OLGW-11	2/24/2009	Sch. 40 PVC	2	-38	-23	-21	-1	0	+3	759.80
OLGW-12	2/25/2009	Sch. 40 PVC	2	-20	-5	-3	-0.5	0	+3	744.07
OLGW-1D	3/3/2009	Sch. 40 PVC	2	-100	-85	-75	-1	0	+3	756.18
OLGW-7D	3/5/2009	Sch. 40 PVC	2	-80	-65	-55	-50	0	+3	739.72
OLGW-9D	3/5/2009	Sch. 40 PVC	2	-80	-65	-50	-40	0	+3	741.53

Upon review of the current groundwater monitoring system at the Old CKD Landfill and an evaluation of previously collected groundwater data from this monitoring system, Heartland is recommending that groundwater elevation data be collected from each well identified in Table 2, and the monitoring wells selected for sampling be included for groundwater sample collection activities. The identified monitoring wells for sampling were selected as they should provide the most reliable indication of actual groundwater quality both upgradient and downgradient of the Old CKD Landfill. Heartland is also recommending that monitoring well OLGW-2 be abandoned. Monitoring well OLGW-2 was originally installed to serve as an upgradient monitoring well for the alluvial aquifer. However, this well was actually placed within, the Old CKD Landfill footprint. Due to its placement, groundwater results indicate relatively high leachate constituent sample concentrations that are not typical of background conditions. Heartland believes that it is more appropriate to consider monitoring well OLGW-12 as a replacement of OLGW-2 to monitor upgradient conditions relative to the Old CKD Landfill.

Table 2: Monitoring Well Sampling – Old CKD Landfill

Well ID	GW Elevation Data	Sample Well
OLGW-1	X	X
OLGW-4	X	
OLGW-5	X	X
OLGW-8	X	X
OLGW- 10	X	X
OLGW- 11	X	
OLGW- 12	X	X

3.2 New CKD Landfill Groundwater Monitoring System

The groundwater monitoring system at the New CKD Landfill consists of three (4) alluvial monitoring wells identified as NLGW-1, NLGW-2, NLGW-3, and NLGW-4. Table 3 presents monitoring well construction details, while boring logs and monitoring well completion diagrams are contained in Appendix A. The locations of the alluvial monitoring wells for the New CKD Landfill are presented in Figure 3.

Table 3: Monitoring Well Construction – New CKD Landfill

Well ID	Date of Construction	Screen Material	Well Diameter (inches)	Well Depth	Top of Screen	Top of Sand	Top of Bentonite	Top of Grout	Top of Casing	Top of Casing Elev. (msl)
				Feet below (-) or above (+) ground surface						
NLGW-1	1/22/1993	Stainless Steel	2	-25	-15	-13	-12	0	+3	754.21
NLGW-2	1/21/1993	Stainless Steel	2	-35	-20.5	-18	-16	0	+3	761.58
NLGW-3	10/7/2003	Stainless Steel	2	-30	-20	-18	-16	0	+3	758.88
NLGW-4	12/11/2015	Sch. 40 PVC	2	-37	-22	-19	-1	0	+3	762.64

Heartland is recommending that groundwater elevation data and groundwater samples be collected from the groundwater monitoring wells identified in Table 3.

4.0 MONITORING WELL INSPECTION AND MAINTENANCE PROGRAM

Monitoring wells are designed to maintain the integrity of the borehole, minimize the introduction of extraneous materials, provide representative groundwater samples from the monitored

groundwater interval, minimize maintenance, and prevent the entry of surface water into the annular space of the well.

Heartland will conduct an inspection of all monitoring wells associated with the SWMU 11 groundwater monitoring program during each sampling event to ensure the structural integrity of all wells. The inspection will occur immediately prior to monitoring well purging and sampling activities and will consist of a visual evaluation of each monitoring well for the items present on the Monitoring Well Inspection Log contained in Appendix B.

If a groundwater monitoring well cannot function as intended, or if the monitoring well is damaged beyond repair, Heartland will notify the USEPA within ten (10) days of discovery. If possible, the monitoring well will be repaired. If the well cannot be repaired, it will be properly abandoned and replaced within sixty (60) days of notification, unless the USEPA notifies Heartland otherwise in writing. Heartland will notify the USEPA a minimum of ten (10) days prior to undertaking well abandonment, and will submit documentation for each monitoring well abandoned to the USEPA within thirty (30) days of removal.

In order to provide security to the sampling point and to maximize the potential that representative data are collected from the monitoring well, all groundwater monitoring wells will be vented, capped, and locked when they are not being sampled. Groundwater monitoring wells will be clearly labeled and visible throughout the year.

5.0 SAMPLING AND ANALYSIS PLAN

5.1 Monitoring Locations

Groundwater samples will be collected from the two groundwater monitoring systems in place at SWMU 11 as described in Sections 3.1 and 3.2. It should be noted that monitoring well OLGW-2 was abandoned and was plugged December 10, 2015. The well was filled with bentonite and fifteen feet of PVC casing was pulled and the remaining hole was filled with bentonite.

5.2 Sampling Schedule

Groundwater samples will be collected from the monitoring wells identified in Tables 2 and 3 on a semi-annual basis during the months of February and August. If field conditions do not allow access to any wells during those months, the wells will be sampled as soon as field conditions allow access. The USEPA project manager will be notified of the sampling delay. Sampling events should be at least five months apart. The facility may request a change to the sampling frequency following completion of four (4) rounds of groundwater quality data. Justification for a reduction of frequency, if appropriate, will be provided to the USEPA at that time. Criteria to be used to recommend reduction of sampling frequency may include the following:

- Non-detection of a given parameter; or
- Detection of a given parameter at concentrations significantly below levels or regulatory concern.

5.3 Static Water Elevations

To determine the static water elevation, the Heartland sample collector will measure the static water level (SWL) prior to purging and sampling at each groundwater monitoring well. All static water level measurements will be obtained on the first day of the sampling event or within a 24-hour period.

The measurement will be obtained no more than 24 hours prior to purging the groundwater monitoring well. Each well will have a permanent reference point on the top of the well casing, designated as top of casing (TOC), from which all water level measurements will be taken. The reference point has been surveyed to the nearest 0.01 foot and has been referenced to mean sea level (MSL).

Heartland will take the measurement using an electronic water level meter capable of an accuracy of ± 0.01 foot. The meter will be decontaminated prior to each measurement by rinsing with distilled water prior to, or during, the process of reeling the tape back onto the spool. Once the tape is back on the spool, the measuring tape and probe will be rinsed with

distilled water. Minimum contact of the tape and probe/sounder with the water in the well is required to decrease the potential for cross-contamination. Disposable latex gloves will be worn by the sample collector while determining the SWL.

Prior to collecting the measurement, field personnel will verify the location of the measuring point on the TOC. Measurements will be obtained at this location. Field personnel will slowly lower the probe into the well until the sounder beeps or the LED becomes illuminated. The measurement will be read from the tape to the nearest 0.01 foot increment and recorded in the field notes. This measurement is the SWL as measured in feet below the TOC measuring point.

The static water elevation (SWE) will then be calculated using the following equation:

$$\text{SWE} = \text{TOC} - \text{SWL}$$

Where:

SWE = static water elevation (ft MSL)

TOC = top of casing elevation (ft MSL)

SWL = static water level, depth to water below TOC (ft)

5.4 Monitoring Well Purging Procedures

Prior to sampling, each groundwater well will be purged. The wells to be sampled will be purged and sampled utilizing a dedicated disposable bailer or low-flow submersible pump. Purging activities will follow the procedures established in EPA guidance Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers (EPA 542-S-02-001/May 2002) and may utilize either the “Low-Stress Approach” or the “Well-Volume Approach” as described in the guidance.

If only the dedicated bailer is utilized to purge the wells, decontamination procedures are not required. If a submersible pump is used to purge the wells, the pump will be

decontaminated prior to and after use at each well. These procedures will consist of scrubbing with Alconox® detergent then rinsing twice with deionized water.

Field parameters will be obtained during purging activities and will consist of pH, turbidity, temperature, oxidation-reduction potential (ORP), and specific conductivity. The elevation of the water table will be recorded prior to any purging activities. The depth of the bottom of the well will be recorded after samples have been collected. Observations of the physical characteristics of the sample will also be recorded. Field testing equipment will be calibrated per manufacturer instructions prior to its use on each day.

5.5 Monitoring Well Sampling Procedures

Groundwater samples will be collected upon completion of appropriate purge criteria following procedures established in EPA guidance Groundwater Sampling Guidelines for Superfund and RCRA Project Managers (EPA 542-S-02-001/May 2002).

All collected groundwater samples will be placed into laboratory-supplied plastic/glass containers as appropriate for the required analysis. Containers will be filled to the greatest extent possible to minimize any headspace. Samples to be analyzed for Total Arsenic. If turbidity levels are greater than 5 NTUs and cannot be reduced through additional monitoring well development or monitoring well replacement, a request to revise the sampling to allow for filtered sample collection may be made.

5.6 Sample Custody and Shipping

Sample containers will be obtained from the laboratory and are precleaned by the manufacturer before use. Sample containers will be labeled with the well or sample designation, the date and time of sampling, and the sampler's name or initials. Samples will be placed on ice in a cooler and kept iced until received at the laboratory. Sample labeling for primary samples will be by individual well name (e.g., MW-101). Blind duplicated will be labeled as "DUP 01." The field sampler will record the location of the duplication in the field sampling notes. Equipment and field blanks will be labeled as such.

Samples for chemical analysis either will be delivered in person or shipped in coolers to the appropriate laboratory by overnight delivery service. Completed chain-of-custody (COC) records will be placed in a plastic bag, sealed, and taped to the inside cover of the cooler. After icing the samples, the coolers will be sealed and shipped. A tamper-proof custody seal will be affixed to each cooler used to transport samples for analysis. Sample collection and shipment will be coordinated with the laboratory in advance. The laboratory will be notified of shipments that are in transit.

The possession of samples will be traceable through the use of COC procedures. Specific COC records will accompany all sample shipping containers to document the transfer of the shipping containers and samples from the field collection point to the laboratory receiving the samples for analysis. The procedures to be implemented are as follows.

- Property identify and label each sample in the field.
- Complete COC records in the field, stating sample identification, the number and type of containers filled, the sampling date, the sampling time, and the sample collector's name. Fill out the COC record using indelible ink, preferably a ballpoint pen. Place the original (top) copy in the cooler with the samples, and keep one copy. If the samples are to travel by common courier, indicate on the COC record the shipping number from the courier bill of lading.
- Pack the shipping containers with the samples, the COC records, and the ice packs. Assign each set of containers to be shipped together a COC record, which travels with the sample container.
- Seal and ship the containers to the appropriate laboratory. Affix a tamper-proof custody seal (provided by the analytical laboratory) to each cooler shipped. Identify common carriers or intermediate individuals on the COC record, and retain copies of all bills of lading.

- Receive and check the shipping containers in the laboratory for broken seals, damaged sample containers, or discrepancies. Instruct the laboratory to notify the sample collector immediately of any problems.

If an error is discovered on a sample COC record, the person who made the error will correct it when possible. Corrections or insertions are made by inserting the needed correction. No erroneous material is to be erased. Rather, a single line will be drawn through mistakes. The date and the initials of the person who is making the correction will be written beside the correction. This procedure applies to words or figures that are inserted or added to a previously recorded statement.

If a COC record is damaged in shipment, the field technician will prepare a written statement detailing the pertinent information, including how the sample was collected. The statement will include information such as field log book entries regarding the sample. Additional COC procedures are included in the Quality Assurance Project Plan (QAPP).

5.7 Equipment Decontamination

Appropriate equipment used for sampling will be decontaminated between sample points (i.e., after each well). Procedures for decontamination are outlined below.

Water Level Indicator, Conductivity/pH Meter

- Rinse probe or cup with soapy (phosphate-free soap) water.
- Rinse with deionized water.
- Air dry.

Bailers

- Use individual, precleaned, disposable bailers to purge wells and to collect samples.
- Use new bailers for each sample round. Discard the cord used to deploy and retrieve bailers between wells.

Pumps

- If submersible pumps are used for sampling, decontaminate them using an Alconox® and water wash and deionized water rinses prior to installation.

Tygon Tubing and Barrel Filters

- Discard tygon tubing after each well or decontaminate the tubing using an Alconox® and water wash and deionized water rinses prior to reuse. Barrel filters shall be discarded at the completion of each sampling event.

5.8 Analytical Parameters

The groundwater samples from each monitoring well will be analyzed for dissolved arsenic, field parameters, and geochemical parameters as presented in Table 4.

Table 4: Groundwater Sampling Analytical Constituents List

<u>Analytical Suite</u>	<u>Sampling Analytical Method</u>
Field Parameters	
Static Water Level	Section 5.3
pH	<u>SM 4500-H+B</u>
Oxidation Reduction Potential (ORP)	SM 2580B
Turbidity as NTU	EPA 180.1
Specific Conductivity	<u>EPA 120.1</u>
Temperature	<u>SM 2550B</u>
Total Metals	
Arsenic	<u>EPA 200.8</u>

5.9 Quality Assurance/Quality Control

Field quality control (QC) samples will consist of a blind duplicate sample, a field blank, and an equipment blank. Heartland will prepare duplicate samples by taking two independent samples as close as possible to the same point and time. They will be two separate samples taken from the same source, stored in separate containers, and analyzed independently. The primary sample will be collected first, followed by the duplicate. These duplicates are useful in documenting the precision of the sampling process. Duplicate samples will be collected for all analytes at a rate of one field duplicate per sampling event. The duplicate sample will be submitted as a blind duplicate to the laboratory. Blind duplicate sample locations must be identified in the field notes, but not on the sample labels or COC records. Field duplicates will be obtained from wells that previously contained analytes of interest.

At the end of each sampling day, a field blank will be collected consisting of distilled water or deionized water that has been brought onto the site. The water will be poured into a set of laboratory bottles that will be subject to the same analysis as each of the other samples. The field blank will be poured into the containers at a location no greater than fifty (50) feet from the last well to be sampled.

One equipment blank per sampling event will be collected and analyzed for all analytes to assess procedural errors in equipment decontamination. The equipment blank will use the same water source as that used during decontamination procedures, and the water will be poured over or through sampling equipment (i.e., tubing).

6.0 QUALITY ASSURANCE PROJECT PLAN

This section presents the Quality Assurance Project Plan (QAPP) for the groundwater monitoring program as required by Heartland's RCRA/HSWA permit issued July 18, 2013.

6.1 Project Description

SWMU 11 consists of two (2) CKD landfills identified as the Old CKD Landfill and the New CKD Landfill. Numerous RFI and follow-up activities have taken place at SWMU 11 since 1991 through the present, including the installation and sampling of groundwater monitoring wells at both the Old CKD Landfill area and the New CKD Landfill area.

On July 18, 2013, the USEPA issued Heartland a new RCRA/HSWA permit that identified corrective action provisions pertaining to known SWMUs and OACs at the Heartland facility. Section 111.K.2.d.i of the permit required the development of a Groundwater Monitoring Plan such that Heartland can monitor the effectiveness and performance of the corrective measures and determine any failures of the corrective measures.

6.2 Quality Assurance/Quality Control (QA/QC) Procedures

6.2.1 Intended Use and Necessary Level of Precision and Accuracy

- The data will be used to identify and quantify if a released hazardous waste exists at SWMU 11 and will be used to monitor the effectiveness and performance of the corrective measures and determine any failures of the corrective measures.
- All analytical work will be performed to the highest degree of accuracy and precision possible as determined according to the specific analytical methods.

6.2.2 General Procedures for Representative Sampling

All data obtained as a result of any sampling and analytical effort must demonstrate as precisely and as accurately as possible the conditions existing at the time of sampling, including all other subsequent activity involving the sample (i.e., preservation, storage, transport, and analysis). Factors to be considered to assure representative samples are:

- Environmental conditions at the time of the sampling. Samples should not be taken during a precipitation event or even during extreme weather conditions.
- All sampling tools and equipment shall be of similar make and thoroughly inspected prior to use.
- A detailed sampling site plan should be prepared.
- Detailed sampling procedures for specific media and equipment shall be used.
- USEPA-approved equipment and procedures for obtaining representative samples shall be used.
- The representativeness of the sample media shall be assured by visual judgment and physical criteria.
- The analytical parameters selected shall be determined based on process knowledge, historical disposal activities and wastes, and plant material purchase and use records.

6.3 Specific Procedures for Representative Sampling

Heartland has standard technical procedures developed for QA/QC purposes that will be followed during the field operations. The specific Heartland procedures that will be used during the implementation of this Groundwater Monitoring Plan are included in Appendix C. Where necessary, site-specific modifications or clarifications to Heartland's QA procedures will be included in sections of this QAPP.

6.3.1 Groundwater Sampling

Groundwater samples will be collected upon completion of appropriate purge criteria following procedures established in EPA guidance Groundwater Sampling

6.4 Documentation of Field Sampling Operations and Procedures

- All field sampling procedures and operations shall be in written format for SWMU 11.
- A photographic documentation log will be prepared. The log will contain an indexed set of photographs documenting each sampling location and each sampling procedure used during the work.
- A field log book shall be developed and used for all field sampling operations and procedures.
- Entries in the field log book shall include the following:
 - Purpose of sampling;
 - Location(s) of sampling point(s);
 - Name and address of field contact;
 - Producer of waste and address, if different than location;
 - Type of process producing the waste;
 - Type of waste or media;
 - Suspected waste composition, including concentrations;
 - Number and volume of sample taken;
 - Description of sampling point and sampling methodology;
 - Sample preservatives;
 - Date and time of collection;
 - Collector's sample identification number(s);
 - Sample distribution and how transported;
 - References such as maps, site plans, or photographs of the sampling site;
 - Field observations;

- Any field measurements made; and,
- Signatures of personnel responsible for observations.

6.4.1 Description of Analytical Procedures

- All analytical procedures shall be approved by USEPA.
- The latest version of *EPA SW-846 Test Methods for Evaluating Solid Wastes* shall be used for all analytical work.
- All analytical procedures shall be carried out under the guidance of a chemical science professional that has experience in performing the specified analyses on the type of sample.
- The laboratory shall be state-certified for the specific analytical parameters and approved according to the USEPA CLP Protocol.
- The anticipated USEPA SW-846 analytical procedures to be used for the initial sample(s) analyses are:
 - Total Arsenic – 6010.

Quality control checks will be performed to ensure that the data collected is representative and valid. Items that will be part of the quality control program are as follows.

6.4.2 Field Activities

- Standardized checklists and field/log notebooks will be used throughout all field sampling and associated activities.
- The completeness and quality of all checklists and field log/notebooks will be verified by an independent person.
- Strict adherence to COC procedures will be documented and verified throughout all phases of sampling and analyses.

- All field equipment will be inspected and calibrated prior to and after use following either the manufacturer's instructions or standard operating procedures.
- Replicate samples consisting of at least one sample per sampling event will be collected and analyzed for all specific analytical parameters.
- Field blanks will be collected once per sampling event.
- Equipment rinsate samples will be collected once per sampling event.

A summary of field QC samples is provided in Table 5, below.

Table 5: Field QC Samples per Sampling Event

Type of Sample	Metal (Dissolved Arsenic)
Equipment Rinsate	1/Sampling Event
Field Blank	1/Sampling Event
Field Duplicates	1/Sampling Event

6.4.3 Analytical Activities

- Method blanks will be used to establish background levels and for correction purposes.
- Laboratory control samples to check operator and instrument performance will be used.
- Calibration check samples will be incorporated during the course of analysis of the waste or media samples.
- Replicate samples will be analyzed for reproducibility and other statistical evaluation.

- Matrix spike duplicates will be used to evaluate analytical performance and to establish/correct for matrix interferences.
- External quality control samples (i.e., “blind” samples) will be analyzed as a routine laboratory performance check.
- Quality control charts or reports demonstrating overall analytical performance for specific methodology will be produced either independently or as a result of participating in a state or federal QA/QC program.
- Zero and span gases will be used for instrument setup and calibration.
- Routine report quality control checks will be used to assure proper analytical chemistry/reaction performance.
- QA objectives for measurement of data in terms of precision, accuracy, representativeness, completeness, and comparability.

The QA objective for the determination of accuracy within the measurement system will be accomplished through the analysis of blank samples (e.g., distilled/deionized water) and the analysis of samples spiked at a known concentration using standard references material that is certified and traceable.

The field matrix spike objective is to provide a best-case estimate of bias based on recovery. This will include matrix effects associated with sample preservation, shipping, preparation, and analysis.

The lab matrix spike is intended to provide an estimate of recovery incorporating matrix effects associated with sample preparation and analysis only.

The analysis matrix spike is intended to provide an indication of matrix effects associated with the analysis process only.

The analysis of a known concentration of a standard reference material into an appropriate method solvent will be used to provide an indication of the accuracy of the analytical system calibration.

The QA objective for the determination of precision will be accomplished by the sampling and analysis of replicate samples that represent approximately 10% of each media sampled.

The QA objective of representativeness is intended to demonstrate as precisely and accurately as possible the conditions that existed at the time of measurement. Consideration will be given to the following factors throughout the groundwater sampling process:

- Environmental conditions at the time of sampling;
- Fit of the modeling or other estimation techniques to the event(s);
- Appropriateness of site file information versus release conditions;
- Appropriateness of sampling and analytical methodologies;
- Number of sampling points;
- Representativeness of selected media; and
- Representativeness of selected analytical parameters.

The QA objective of completeness is intended to ensure that the proper amount of valid analytical data is obtained from the measurement system as can be expected to be obtained under normal conditions.

The QA objective of comparability is intended to ensure that the data collected from the measurement system can be compared to other data collected from another measurement system for similar purposes. The standard USEPA analytical

methodologies contained in the reference document *EPA SW-846* should be sufficient to ensure data comparability.

6.4.4 Sample Custody

COC procedures will be used to ensure sample integrity from the point of collection to data reporting. These procedures will include the ability to trace the possession and handling of samples from collection through analysis and final disposition.

Samples collected by the field team members and shipped to the laboratory will be appropriately marked with a sample label. The samples will remain in the actual possession of or in view of the field team members until the samples have been placed in a designated secure area.

COC forms will be filled out and signed by the field team members who collected the sample whenever custody is transferred to the shipping company. The original of the two-part form will be placed in a waterproof bag and will accompany the samples in lieu of a recipient's signature, and the copy will be retained by Heartland and will be maintained with the project records. The laboratory personnel receiving the sample shipment will sign the COC after opening the cooler(s) and unpacking the samples.

At least two custody seals will be affixed to the outside of each cooler, if the samples are to be shipped to a laboratory by a bonded shipping company. The seals will be signed and dated and then placed over the cooler seam. Nylon-reinforced tape will be placed over the seal to reduce the potential for accidental tearing. An air bill will be completed and attached to the cooler. Air bill numbers will be recorded on the COC form accompanying the samples.

Copies of the COC forms and shipping bills will be saved by Heartland and will become part of the project documentation. Heartland will phone the laboratory each day that samples are shipped and provide the air bill number(s), number of

coolers, and number of samples; or, Heartland may fax the COC forms to the laboratory. Heartland will make a telephone log of these calls, including the air bill numbers.

6.4.5 Decontamination

Appropriate equipment used for sampling will be decontaminated between sample points (i.e., after each well). Procedures for decontamination are outlined below.

Water Level Indicator, Conductivity/pH Meter

- Rinse probe or cup with soapy (phosphate-free soap) water.
- Rinse with deionized water.
- Air dry.

Bailers

- Use individual, precleaned, disposable bailers to purge wells and to collect samples.
- Use new bailers for each sample round. Discard the cord used to deploy and retrieve bailers between wells.

Pumps

- If submersible pumps are used for sampling, decontaminate them using an Alconox® and water wash and deionized water rinses prior to installation.

Tygon Tubing and Barrel Filters

- Discard tygon tubing after each well or decontaminate the tubing using an Alconox® and water wash and deionized water rinses prior to re-use. Barrel filters shall be discarded at the completion of each sampling event.

6.5 Data Reduction, Validation, and Reporting

6.5.1 Data Reduction

Sample calculations and/or the formulas will appear on all bench data forms, which will be submitted with the CMI annual report.

6.5.2 Data Validation

Before any data is transcribed on a report, or verbally transmitted to a customer, it must be reviewed by the laboratory director or his/her designee. This will include, but not be limited to, work sheets, notebooks, chromatograms, and calibration charts. The laboratory director or designee will review all the information to verify its correctness. The data is then sent to typing. When the report is received from typing, it is validated before being signed. The report narrative must be signed in original signature by the laboratory director or designee.

In the event the laboratory director cannot validate all data reported for each sample, he/she will provide a detailed description of the problems associated with the sample in the report narrative.

6.6 Corrective Action for QA/QC Problems

The corrective action procedures to be used as part of the QA/QC program will include the following.

- Reference to method performance for relative standard deviation, accuracy, precision, peak area, retention times, elution patterns, and reproducibility. The establishment of predetermined limits for these measures, as referenced from

published (SW-846) analytical procedures, will be used to evaluate the need for corrective actions.

- For each measurement system, the chemical science professional in charge of the system is responsible for evaluating the system performance and for determining if the established limits for data have been exceeded. The laboratory director and/or sector analytical supervisors will be responsible for initiating the corrective action. The final authority for approving any corrective action shall be the laboratory director.

When the analysis of a quality control check indicates the system may be out of control, the laboratory director is notified and corrective action is taken. The steps in the corrective action system include, but are not limited to:

- Identifying and defining the problem;
- Assigning responsibility for investigating the problem;
- Determining a corrective action (i.e., removal of the instrument from service, prepare fresh standards and recalibrate, etc.);
- Assigning responsibility for implementing the corrective action;
- Implementing the corrective action and evaluating its effectiveness; and,
- Verifying that the corrective action has eliminated the problem by reanalyzing a QC sample.

6.7 QA Reports to Management

All QC data is critically reviewed by the laboratory director and the outside QA Manager, with periodic reporting on data accuracy and precision, results of performance audits, results of system audits, and significant QA problems and the corrective actions taken. The reports for each project also include a separate QA section that summarizes the QC data generated by the laboratories.

If any problems develop during the course of any analysis, immediate steps are taken by the laboratory supervisor to rectify the problem. Such steps are returning instruments, testing reference material samples, running sets of standards, etc. If the problem is not solved at the point, the laboratory director is then notified.

7.0 DATA MANAGEMENT PLAN

7.1 Introduction

This Data Management Plan (DMP) outlines the procedures to be followed for the inventory, control, storage, and retrieval of data collected during the performance of the work outlined in Heartland's Groundwater Management Plan. During the performance of this investigation, a variety of technical data will be generated and reduced for use. The procedures contained in the DMP are designed to ensure that the integrity of the investigation data and results are maintained for subsequent use.

The Prime Contractor, as identified by Heartland, will be responsible for maintaining the project files according to the procedures outlined in this document. Data generated by analytical laboratories and other subcontractors will be submitted directly to the Prime Contractor. All laboratory documentation for the analytical laboratories will be maintained for purposes of validating the analytical data collected during the investigation. All summary reports generated by the Prime Contractor will be kept in the project file.

7.2 Data Record

The project files will be the primary data storage and information system for the groundwater monitoring program. An outline of the file structure is shown below. The major file categories are Project Administration, Correspondence, Site Data, Regional Data, and Reports. Procedures controlling the storage, receipt, and distribution of all incoming and outgoing data, documents, and reports related to the investigation are outlined below.

Project Files Index

- Project Administration (Major Category)
 - Proposal (sub-file)
 - Contracts/Bids (sub-file)
 - Project Plans (sub-file)
 - Project Accounting/Budget (sub-file located in accounting)
 - General Project Information (sub-file) for miscellaneous information not covered in other categories
- Correspondence (Major Category)
 - Correspondence to Prime Contractor (sub-file)
 - Correspondence from Prime Contractor (sub-file)
 - Telephone Correspondence (sub-file)
 - Meeting Notes/Minutes (sub-file)
 - Internal Memos (sub-file)
 - Regulatory Correspondence (sub-file)
 - Correspondence (sub-file)
- Site Data (Major Category)
 - Agency File Data (sub-file) for copies of Agency records
 - Boring/Well Logs (sub-file)
 - Chain of Title (sub-file)
 - Daily Logs (sub-file)
 - Field Notes and Memos (sub-file)
 - Geologic Logs/Data (sub-file)
 - Health and Safety Data (sub-file) for field monitoring and notes
 - Laboratory Results/Data (sub-file) for soil and water combination analysis results
 - Photos (sub-file) pocket folder
 - Regulatory Databases (sub-file)
 - Site Maps (sub-file) general

- Water Sampling Logs (sub-file)
- Regional Data (Major Category)
 - Geology (sub-file)
 - Hydrogeology (sub-file)
 - Maps (sub-file)
- Reports (Major Category)
 - Prime Contractor Reports (sub-file)
 - Other Project Reports (sub-file)

7.2.1 Incoming Data, Reports, and Correspondence

All incoming data, reports, and correspondence will be logged in and date-stamped. If distribution of any document is required, the appropriate number of copies will be made and distributed by the Prime Contractor project manager or a designee per distribution lists to be developed as the project proceeds. The original document received will not be distributed.

7.2.2 Outgoing Data, Reports, and Correspondence

All outgoing project data, reports, and correspondence will be coordinated for transmittal by the Prime Contractor project manager or a designee.

Appropriate project personnel – the Heartland project manager, the Prime Contractor project manager, and the quality control review team leader – will review all outgoing documents. All final reports will be signed and certified in accordance with 40 CFR 270.11 and 270.30(k) by the author(s).

A number of deliverables will be prepared for submission to USEPA. The scope and content of all reports and correspondence will be determined on a report-specific basis and in accordance with the reporting requirements specified in RCRA/HSWA Permit Section II.G. Upon request, Heartland will provide electronic copies of the groundwater monitoring report text and tables in Microsoft Word® and Excel® formats.

Unless otherwise specified, two (2) copies of plans, reports, notification, or other submissions required by the Heartland RCRA/HSWA permit shall be submitted to USEPA via certified mail, delivery service, or hand-delivered to:

U.S. Environmental Protection Agency, Region 7
Air and Waste Management Division
Waste Remediation and Permits Branch
ATTN: Ken Herstowski
11201 Renner Blvd.
Lenexa, Kansas 66129

In addition, one (1) copy of these plans, reports, notifications, or other submissions shall be submitted to:

Kansas Department of Health and Environment
Curtis State Office Building
Bureau of Waste Management
Hazardous Waste Permits Section
ATTN: Miles Stotts
1000 SW Jackson, Suite 320
Topeka, Kansas 66612-1366

7.2.3 Telephone Conversations, Logs, and Meeting Notes

Personnel assigned to the project will maintain logs of individual telephone conversations. Such project personnel will retain these notes until the end of each month, and then they will be filed along with other project documents. Assigned project personnel will take notes from project meetings and conference telephone conversations. These notes will be distributed to the appropriate project personnel. The originals will be placed in the project file.

7.3 Tabular Displays

The database can be used to develop statistical summaries, along with maximum, minimum, and average concentrations at a specific unit or throughout the facility. Supporting data to be presented in the groundwater monitoring report include tabular reports of raw data (usually provided in an appendix), data sorted by media or chemical constituent for each unit, data reduced for statistical analyses, and data sorted by location or depth. Queries can be designed to run a comparison between the detected concentration and the regulatory comparison criteria to produce a table showing which locations and parameters exceed the screening criteria. Summary data also can be supplied in tabular form.

7.4 Graphical Displays

Mapping of data by concentration of contaminant, unit, or other parameters also may be used to aid in site interpretation and the evaluation of candidate units for further investigation. Information stored in the environmental database can be exported for use with graphical software to produce graphical presentations of the data. Graphical displays include bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three-dimensional graphs, etc.

8.0 RECORDKEEPING PLAN

8.1 Introduction

The Recordkeeping Plan outlines the recordkeeping procedures to be followed such that data, reports, and project files can be easily obtained for future access.

8.2 Records Location

All data, reports, and project files developed as part of this Groundwater Monitoring Plan will be kept on-site at the Heartland terminal office, as well as at the Buzzi Unicem USA corporate offices in Bethlehem, Pennsylvania.

8.3 Records Retention

As set forth in Section II.E.9.b. of the RCRA/HSWA permit, Heartland shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations for the active life of the facility, and for disposal facilities for the post-closure care period as well.

9.0 WASTE MANAGEMENT PLAN

9.1 Introduction

The Waste Management Plan outlines the procedures to be followed such that waste generated during the implementation of the Groundwater Monitoring Plan is properly managed.

9.2 Waste Management Practices

Limited volumes of waste material are anticipated to be generated during implementation of the Groundwater Monitoring Plan. Waste materials expected to be generated include used personal protective equipment (PPE) (i.e., gloves) and sampling equipment such as disposable bailers, twine, rags, and tubing. All waste materials will be collected, bagged, and placed into a solid waste receptacle on the Heartland property for transport and disposal at a licensed sanitary landfill.

Management of purge water from monitoring well purging activities will be by disposing of the purge water directly onto the ground a minimum of ten (10) feet from each well.

10.0 PROJECT SCHEDULE

The Groundwater Monitoring Plan for SWMU 11 will commence within 90 days of Work Plan approval by the USEPA such that semi-annual sampling events will be conducted during the months of May and November.

In accordance with Heartland's RCRA/HSWA permit Section 111.K.2.d, results of the monitoring evaluation shall be presented to the USEPA in the annual report required by permit Section III.L.4, which requires that a CMI Annual Report be submitted to the Director no later than March 1 of each year of the prior year's performance. The CMI Annual Report shall include information such as laboratory analytical reports, field notes, and potentiometric maps as well as an evaluation of both short-term and long-term effectiveness of the corrective measures. The report shall also include any deficiencies or violations of engineering controls or institutional controls determined from the inspection, maintenance, and monitoring required by Permit Condition 111.C.1.d.

Additionally, Heartland will complete a Class 1 permit modification to the USEPA within thirty (30) days of approval of the Groundwater Monitoring Plan to include the approved Plan as Permit Attachment 4, as specified in Section III.K.2.d.iv of the permit.

11.0 COST ESTIMATE

A cost estimate is provided for activities to be conducted during the implementation of the Groundwater Monitoring Plan at SWMU 11 on a yearly basis.

Reasonable assumptions were made as to the amount of time required to implement the Plan and prepare the annual CMI Report, and a cost estimate from a reputable laboratory was obtained. Preparation of the Class 1 permit modification is not included in this cost estimate.

Estimates for the field investigation were based on two days in the field per semi-annual sampling event. No meetings with the USEPA were assumed, and project management was assumed to occur throughout the duration of the project.

The following is a breakdown of the cost estimate.

- Semi-annual Sampling Events (2)\$1,880
- Laboratory Analysis and Report\$1,100
- Statistical Data Analysis\$800
- Annual CMI Report\$3200

TOTAL.....\$6,980

12.0 CERTIFICATION

Pursuant to Section 11.F of the RCRA/HSWA permit, SYA and Heartland are providing the following certification.

I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Date: 11/11/15

Signature: 

Name: Robert J. Schreiber, Jr., P.E., Q.E.P.

Registered Kansas Professional Engineer

Registration Number 11219

Schreiber, Yonley & Associates

16252 Westwoods Business Park Drive

Ellisville, Missouri 63021

Date: 12-2-15

Signature: 

Name: John White

Title: SVP Logistics

Heartland Cement Company

dba Buzzi Unicem USA

APPENDIX A

BORING LOGS AND MONITORING WELL COMPLETION DIAGRAMS

WELL QLGW-1

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: OLD KILN DUST LANDFILL
 DATE STARTED: 1/23/93
 DATE COMPLETED: 1/23/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 752.10 FT.
 WATER LEVEL: 5.57 FT.
 WEATHER: SUNNY, 50° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixtures, moisture, other notes, ORIGIN	VISUAL CONTAM.				ODOR			LITHOLOGY	DEPTH	WELL CONSTRUCTION
					NONE	STAIN	SHEEN	HEAVY	NONE	SLIGHT	MODERATE	STRONG		
0-5	augered	100	0	Dark brown silty CLAY grading to black									0	
5-10	augered	80	0	grading to brown clay and silt, trace sand									5	
10-15	augered	100	0	Alternating layers of SAND and SILT, grading to light brown/orange									10	
15-20	augered	100	0	Orange/light brown loose fine SAND and SILT, very moist, gray and dark brown lenses interspersed water first evident at 19+ ft. saturated									15	
20-25	augered	75	0										20	
25-30	augered	30	0	SAND and SILT with fractured bedrock (limestone)									25	
				Bedrock (limestone) at 28+ ft.									30	
				Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									35	

ATLANTIC

WELL OLGW-2

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: OLD KILN DUST LANDFILL
 DATE STARTED: 1/23/93
 DATE COMPLETED: 1/23/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 745.84 FT.
 WATER LEVEL: 6.70 FT.
 WEATHER: SUNNY, 45° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixtures, moisture, other notes, ORIGIN	VISUAL CONTAM.						ODOR NONE SLIGHT MODERATE STRONG	LITHOLOGY	DEPTH	WELL CONSTRUCTION
					NONE	SLIGHT	MODERATE	STRONG	HEAVY	VERY HEAVY				
0-5	augered	60	0	Augered through 1.5+ ft. of kiln dust which had been pushed into work area by bulldozer Dark brown clayey SILT, trace organics									0	
5-10	augered	100	0	slightly moist									5	
10-15	augered	100	0	Grading to brown silty CLAY, moist									10	
15-20	augered	40	0	saturated									15	
20-25	augered	60	0	Brown to gray CLAY, saturated									20	
				Total Depth 25+ ft.									25	
				Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									30	

ATLANTIC

WELL OLGW-3

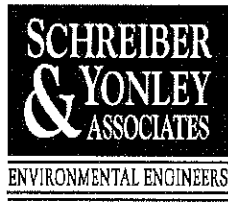
PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: OLD KILN DUST LANDFILL
 DATE STARTED: 1/23/93
 DATE COMPLETED: 1/23/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 752.53 FT.
 WATER LEVEL: 18.81 FT.
 WEATHER: SUNNY, 35° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION	VISUAL CONTAM.			ODOR			LITHOLOGY	DEPTH	WELL CONSTRUCTION
				color, density, SOIL, admixtures, moisture, other notes, ORIGIN	NONE	STAIN	SHOWN	NONE	SLIGHT	MODERATE	STRONG		
0-5	augered	80	0	Augered through turf, brown compact fine sand and silt, with gravel, organics, trace clay, dry Grading to dark brown compact silty CLAY, trace fine sand, dry								0	
5-10	augered	100	0	Dark brown to black loose silty CLAY, trace fine sand, dry								5	
10-15	augered	95	0									10	
15-20	augered	100	0	trace gravel, slightly moist at 19 1/2 ft.								15	
20-25	augered	100	0	some cobbles, moist								20	
25-30	augered	90	0	grading to brown, compact, some gravel, very moist								25	
30-35	augered	90	0	Dark brown compact silty CLAY with fine sand, trace gravel, saturated								30	
				grading to orange-brown with gray lenses								35	
				weathered bedrock (limestone) in last 0.5 ft. of spoon								40	
				Total Depth 34.5 ft.									

Note: Bentonite seal was allowed to
 setup for 8 hours (minimum) prior to
 grouting remainder of annulus.

ATLANTIC



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LOG OF TEST BORING

Client: Buzzi Unicem		Project No:		Boring / Well No. OLGW-4	
Project: Heartland Cement				Page No. 1 of 2	
Location: Independence, Ks.				Start Date: 3/23/2004	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 3/24/2004	
Drilling Contractor: Layne				Sample Method:	
Drill Rig: Mud Rotary					
Water Encountered ? :		Total Boring Depth: 34		Hole Diameter:	
Initial Water Level:		Surface Casing Depth: -		Inspector (s): Pope	
Static Water Level: 4.3		Well Depth: 34		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20					Silty clay, as above.				

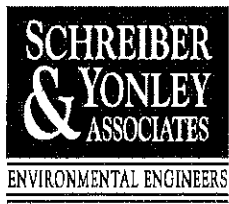
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LOG OF TEST BORING

Client: Buzzi Unicem				Project No:		Boring / Well No. OLGW-4			
Project: Heartland Cement						Page No. 2 of 2			
Location: Independence, Ks.						Start Date: 3/23/2004			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/24/2004			
Drilling Contractor: Layne						Sample Method:			
Drill Rig: Mud Rotary									
Water Encountered ? :			Total Boring Depth: 34			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: -			Inspector (s): Pope			
Static Water Level: 4.3			Well Depth: 34			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33					Total depth = 34 feet bgs.				
34									
35									
36									
37									
38									
39									
40									
Notes: Monitoring well set with 10 feet of screen, and 27 feet of riser for an above ground completion.									



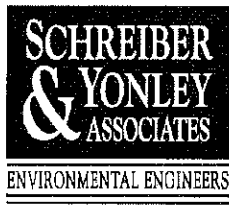
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LOG OF TEST BORING

Client: Buzzi Unicem		Project No:		Boring / Well No. OLGW-5	
Project: Heartland Cement				Page No. 1 of 2	
Location: Independence, Ks.				Start Date: 3/25/2004	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 3/25/2004	
Drilling Contractor: Layne				Sample Method:	
Drill Rig: Mud Rotary					
Water Encountered ? :		Total Boring Depth: 30		Hole Diameter:	
Initial Water Level:		Surface Casing Depth: -		Inspector (s): Pope	
Static Water Level:		Well Depth: 30		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20					Silty clay, as above.				

Notes:



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LOG OF TEST BORING

Client: Buzzi Unicem				Project No:		Boring / Well No. OLGW-5			
Project: Heartland Cement						Page No. 2 of 2			
Location: Independence, Ks.						Start Date: 3/25/2004			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/25/2004			
Drilling Contractor: Layne						Sample Method:			
Drill Rig: Mud Rotary									
Water Encountered ? :			Total Boring Depth: 30		Hole Diameter:				
Initial Water Level:			Surface Casing Depth: -		Inspector (s): Pope				
Static Water Level:			Well Depth: 30		Company: Schreiber, Yonley & Associates				
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
22									
23									
24									
25									
26									
27									
28									
29									
30									
31					Total depth = 30 feet bgs.				
32									
33									
34									
35									
36									
37									
38									
39									
40									
Notes: Monitoring well set with 10 feet of screen, and 23 feet of riser for an above ground completion.									



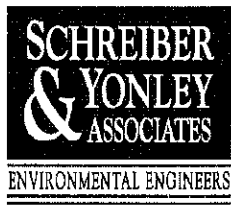
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LOG OF TEST BORING

Client: Buzzi Unicem		Project No:		Boring / Well No. OLGW-6	
Project: Heartland Cement				Page No. 1 of 2	
Location: Independence, Ks.				Start Date: 3/25/2004	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 3/25/2004	
Drilling Contractor: Layne				Sample Method:	
Drill Rig: Mud Rotary					
Water Encountered ? :		Total Boring Depth: 30		Hole Diameter:	
Initial Water Level:		Surface Casing Depth: -		Inspector (s): Pope	
Static Water Level: 18.98		Well Depth: 30		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20					Silty clay, as above.				

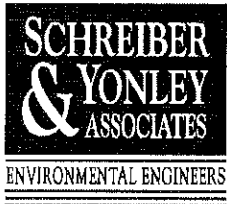
Notes:



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LOG OF TEST BORING

Client: Buzzi Unicem				Project No:		Boring / Well No. OLGW-6			
Project: Heartland Cement						Page No. 2 of 2			
Location: Independence, Ks.						Start Date: 3/25/2004			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/25/2004			
Drilling Contractor: Layne						Sample Method:			
Drill Rig: Mud Rotary									
Water Encountered ? :				Total Boring Depth: 30		Hole Diameter:			
Initial Water Level:				Surface Casing Depth: -		Inspector (s): Pope			
Static Water Level:				Well Depth: 30		Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
22									
23									
24									
25									
26									
27									
28									
29									
30									
31					Total depth = 30 feet bgs.				
32									
33									
34									
35									
36									
37									
38									
39									
40									
Notes: Monitoring well set with 10 feet of screen, and 23 feet of riser for an above ground completion.									

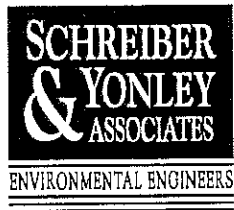


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LOG OF TEST BORING

Client: Buzzi Unicem				Project No:		Boring / Well No. OLGW-7			
Project: Heartland Cement						Page No. 1 of 1			
Location: Independence, Ks.						Start Date: 7/20/2004			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 7/20/2004			
Drilling Contractor: Layne						Sample Method:			
Drill Rig: Mud Rotary									
Water Encountered ? :				Total Boring Depth: 17		Hole Diameter:			
Initial Water Level:				Surface Casing Depth: -		Inspector (s): Pope			
Static Water Level: 4.73				Well Depth: 17		Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: yellowish brown, stiff, firm, non-plastic, dry to moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

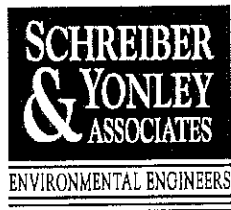
Notes: Monitoring well set with 10 feet of screen and 10 feet of riser for above ground completion.



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LOG OF TEST BORING

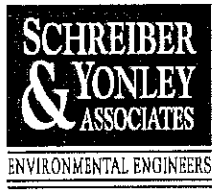
Client:			Project No: 070113		Boring / Well No. OLGW-8		Page No. 1 of 1		
Project: Heartland Cement Company									
Location: Independence, Kansas					Start Date: 2/24/2009				
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/24/2009			
Drilling Contractor: Pratt Environmental Well Service					Sample Method: Hollow Stem Auger				
Drill Rig: Stardrill 300									
Water Encountered ? : Yes			Total Boring Depth: 22'		Hole Diameter: 6"				
Initial Water Level:			Surface Casing Depth: -		Inspector (s): MFM				
Static Water Level:			Well Depth:		Company: Schreiber, Yonley & Associates				
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1	3-8		100		GRAVEL: Coarse, road pad fill		G		
2									
3									
4									
5	8-13		100		SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
6									
7									
8									
9	13-18		100		Wet				
10									
11									
12									
13	18-22		100						
14									
15									
16									
17									
18									
19									
20									
					Continued Silty Clay to TD of 22'.				
Notes: Monitoring well constructed with 2-inch PVC screen from 7'-22' BGS, riser from 3' AGS - 7' BGS, sand from 5'-22' BGS, bentonite from 0'-5' BGS.									



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LOG OF TEST BORING

Client:		Project No:		070113		Boring / Well No.		OLGW-9	
Project: Heartland Cement Company						Page No. 1 of 1			
Location: Independence, Kansas						Start Date: 2/24/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/24/2009			
Drilling Contractor: Pratt Environmental Well Service						Sample Method: Hollow Stem Auger			
Drill Rig: Stardrill 300									
Water Encountered ? : Yes			Total Boring Depth: 22'			Hole Diameter: 6"			
Initial Water Level:			Surface Casing Depth: -			Inspector (s): MFM			
Static Water Level:			Well Depth:			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					GRAVEL: Coarse, road pad fill		G		
2									
3									
4					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
5	3-8		100						
6									
7									
8									
9									
10	8-13		100						
11									
12									
13					Wet				
14									
15	13-18		100						
16									
17									
18									
19									
20	18-22		100		Continued Silty Clay to TD of 22'.				
Notes: Monitoring well constructed with 2-inch PVC screen from 7'-22' BGS, riser from 3' AGS - 7' BGS, sand from 5'-22' BGS, bentonite from 0'-5' BGS.									



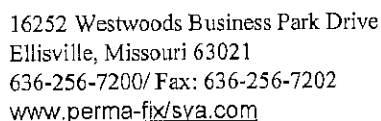
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LOG OF TEST BORING

Client:		Project No: 070113		Boring / Well No. OLGW-10	
Project: Heartland Cement Company				Page No. 1 of 1	
Location: Independence, Kansas				Start Date: 2/24/2009	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 2/24/2009	
Drilling Contractor: Pratt Environmental Well Service				Sample Method: Hollow Stem Auger	
Drill Rig: Stardrill 300					
Water Encountered ? : Yes		Total Boring Depth: 19.5'		Hole Diameter: 6"	
Initial Water Level:		Surface Casing Depth: -		Inspector (s): MFM	
Static Water Level:		Well Depth:		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					GRAVEL: Coarse, road pad fill		G		
2									
3									
4					SILTY CLAY; reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
5	3-8		100						
6									
7									
8									
9									
10	8-13		100						
11									
12									
13									
14					Wet				
15	13-18		100						
16									
17									
18									
19	18-19.5		100						
20					Auger refusal at 19.5'				

Notes: Monitoring well constructed with 2-inch PVC screen from 4.5'-19.5' BGS, riser from 3' AGS - 4.5' BGS, sand from 2.5'-19' BGS, bentonite from 0'-2.5' BGS.



Client:				Project No: 070113		Boring / Well No. OLGW-11			
Project: Heartland Cement Company						Page No. 1 of 1			
Location: Independence, Kansas						Start Date: 2/24/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/24/2009			
Drilling Contractor: Pratt Environmental Well Service						Sample Method: Hollow Stem Auger			
Drill Rig: Stardrill 300									
Water Encountered ? : Not observed			Total Boring Depth: 38'			Hole Diameter: 6"			
Initial Water Level:			Surface Casing Depth: -			Inspector (s): MFM			
Static Water Level:			Well Depth:			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38					Auger refusal at 38'				
39									
40									
Notes: Monitoring well constructed with 2-inch PVC screen from 23'-38" BGS, riser from 3' AGS - 23' BGS, sand from 21' to 38' BGS, bentonite from 0'-21' BGS.									



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LOG OF TEST BORING

Client:		Project No: 070113		Boring / Well No. OLGW-12	
Project: Heartland Cement Company				Page No. 1 of 1	
Location: Independence, Kansas				Start Date: 2/25/2009	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 2/25/2009	
Drilling Contractor: Pratt Environmental Well Service				Sample Method: Hollow Stem Auger	
Drill Rig: Stardrill 300					
Water Encountered ? : Not observed		Total Boring Depth: 20'		Hole Diameter: 6"	
Initial Water Level:		Surface Casing Depth: -		Inspector (s): MFM	
Static Water Level:		Well Depth:		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
2									
3									
4									
5	3-8		100						
6									
7									
8									
9									
10	8-13		100						
11									
12									
13									
14									
15	13-18		100						
16									
17									
18									
19									
20	18-20		100		Auger refusal at 20'				

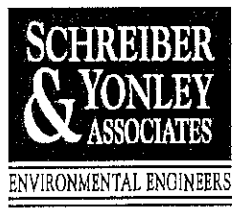
Notes: Monitoring well constructed with 2-inch PVC screen from 5'-20" BGS, riser from 3' AGS - 5' BGS, sand from 3' to 20' BGS, bentonite from 0'-3' BGS.



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LOG OF TEST BORING

Client:					Project No: 070113		Boring / Well No. OLGW-1D			
Project: Heartland Cement Company							Page No. 1 of 5			
Location: Independence, Kansas							Start Date: 2/25/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/27/2009				
Drilling Contractor: Pratt Environmental Well Services							Sample Method:			
Drill Rig: Stardrill 300										
Water Encountered ? :					Total Boring Depth: 95'		Hole Diameter:			
Initial Water Level:					Surface Casing Depth: 35'		Inspector (s): MFM			
Static Water Level:					Well Depth: 95'		Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.	
1					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL			
2										
3					Mud rotary to 35'					
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
Notes: 7 inch steel casing set and cemented to 31.5' BGS. 2-inch PVC screen set from 80-95' BGS, riser from 3' AGS to 80' BGS. Sand placed from 75'-95' BGS, bentonite from 0- 75'.										



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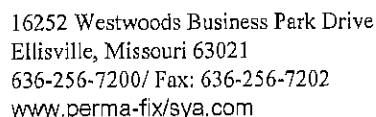
Client:				Project No: 070113		Boring / Well No. OLGW-1D			
Project: Heartland Cement Company						Page No. 2 of 5			
Location: Independence, Kansas						Start Date: 2/25/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/27/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 95'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 35'			Inspector (s): MFM			
Static Water Level:			Well Depth: 95'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
22									
23									
24									
25									
26					LIMESTONE (Drum Formation): light gray, shale partings.				
27									
28									
29									
30									
31					SHALE (Cherryvale Formation): gray, thinly laminated				
32									
33									
34									
35									
36					Casing set and cemented at 35'. Switch to air rotary drilling				
37									
38									
39									
40									
Notes:									



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LOG OF TEST BORING

Client:		Project No:		070113		Boring / Well No.		OLGW-1D	
Project: Heartland Cement Company						Page No. 3 of 5			
Location: Independence, Kansas						Start Date: 2/25/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/27/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 95'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 35'			Inspector (s): MFM			
Static Water Level:			Well Depth: 95'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
41					SHALE (Cherryvale Formation): gray, thinly laminated				
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
Notes:									



Client:					Project No: 070113		Boring / Well No. OLGW-1D			
Project: Heartland Cement Company							Page No.		4 of 5	
Location: Independence, Kansas							Start Date: 2/25/2009			
Surface Elevation:			Top of Casing Elevation:				Completion Date: 2/27/2009			
Drilling Contractor: Pratt Environmental Well Services							Sample Method:			
Drill Rig: Stardrill 300										
Water Encountered ? :					Total Boring Depth: 95'		Hole Diameter:			
Initial Water Level:					Surface Casing Depth: 35'		Inspector (s): MFM			
Static Water Level:					Well Depth: 95'		Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.	
61					SHALE (Cherryvale Formation): gray, thinly laminated					
62										
63										
64										
65										
66										
67										
68					LIMESTONE (Cherryvale Formation): light gray					
69										
70										
71										
72										
73										
74										
75					SHALE (Cherryvale Formation): gray, thinly laminated					
76										
77										
78										
79										
80										

Notes:



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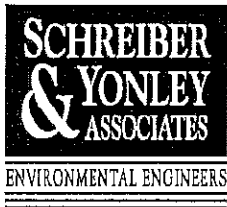
Client:				Project No: 070113		Boring / Well No. OLGW-1D			
Project: Heartland Cement Company						Page No. 5 of 5			
Location: Independence, Kansas						Start Date: 2/25/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 2/27/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :					Total Boring Depth: 95'		Hole Diameter:		
Initial Water Level:					Surface Casing Depth: 35'		Inspector (s): MFM		
Static Water Level:					Well Depth: 95'		Company: Schreiber, Yonley & Associates		
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
81					SHALE (Cherryvale Formation): gray, thinly laminated				
82									
83									
84									
85									
86									
87									
88									
89									
90					LIMESTONE (Cherryvale Formation): light gray				
91									
92									
93									
94									
95									
96									
97									
98									
99									
100					Total depth at 95 feet.				
Notes:									



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LOG OF TEST BORING

Client:		Project No:		070113		Boring / Well No.		OLGW-7D	
Project: Heartland Cement Company						Page No. 1 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 80'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 50'			Inspector (s): MFM			
Static Water Level:			Well Depth: 80'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18					Auger refusal at 18'				
19					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
20					Air rotary drilling				
Notes: 7" steel casing set from 0-31.5' BGS, 5 & 1/2" steel casing set from 0-50' BGS. 2-inch PBC screen set from 65'-80' BGS, riser set from 3' AGS to 65' BGS, sand placed from 50'-80' BGS, surface casings sealed with neat cement.									



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LOG OF TEST BORING

Client:				Project No: 070113		Boring / Well No. OLGW-7D			
Project: Heartland Cement Company						Page No. 2 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 80'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 50'			Inspector (s): MFM			
Static Water Level:			Well Depth: 80'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
22									
23									
24									
25									
26									
27									
28									
29									
30									
31					7" steel casing set and cemented from ground surface to 31.5'				
32									
33									
34									
35									
36									
37									
38									
39									
40									
Notes:									



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LOG OF TEST BORING

Client:				Project No: 070113		Boring / Well No. OLGW-7D			
Project: Heartland Cement Company						Page No. 3 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 80'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 50'			Inspector (s): MFM			
Static Water Level:			Well Depth: 80'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
41					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53					LIMESTONE (Cherryvale Formation): light gray, occasional shale partings				
54									
55									
56									
57									
58									
59					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
60									
Notes:									



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LOG OF TEST BORING

Client:	Project No:	070113	Boring / Well No.	OLGW-7D
Project: Heartland Cement Company			Page No.	4 of 4
Location: Independence, Kansas			Start Date:	3/3/2009
Surface Elevation:	Top of Casing Elevation:		Completion Date:	3/5/2009
Drilling Contractor: Pratt Environmental Well Services			Sample Method:	
Drill Rig: Stardrill 300				
Water Encountered ? :		Total Boring Depth:	80'	
Initial Water Level:		Surface Casing Depth:	50'	
Static Water Level:		Well Depth:	80'	
		Hole Diameter:		
		Inspector (s):	MFM	
		Company:	Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
61					SHALE (Cherryvale Formation): gray, tight.				
62									
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
78									
79									
80					Total Depth at 80 feet.				

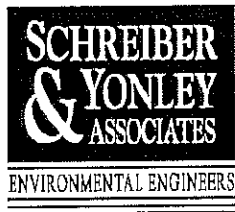
Notes:



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LOG OF TEST BORING

Client:		Project No: 070113		Boring / Well No. OLGW-9D					
Project: Heartland Cement Company				Page No. 1 of 4					
Location: Independence, Kansas				Start Date: 3/3/2009					
Surface Elevation:		Top of Casing Elevation:		Completion Date: 3/5/2009					
Drilling Contractor: Pratt Environmental Well Services				Sample Method:					
Drill Rig: Stardrill 300									
Water Encountered ? :		Total Boring Depth: 80'		Hole Diameter:					
Initial Water Level:		Surface Casing Depth: 40'		Inspector (s):					
Static Water Level:		Well Depth: 80'		Company: Schreiber, Yonley & Associates					
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
1					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
Notes: 7" steel casing set from 0-29' BGS, 5 & 1/2" steel casing set from 0-40' BGS, 2-inch PBC screen set from 65'-80' BGS, riser set from 3' AGS to 65' BGS, sand placed from 50'-80' BGS, bentonite from 40'-50' BGS, surface casings sealed with neat cement.									



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LOG OF TEST BORING

Client:			Project No: 070113			Boring / Well No. OLGW-9D			
Project: Heartland Cement Company						Page No. 2 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :			Total Boring Depth: 80'			Hole Diameter:			
Initial Water Level:			Surface Casing Depth: 40'			Inspector (s):			
Static Water Level:			Well Depth: 80'			Company: Schreiber, Yonley & Associates			
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
21					SILTY CLAY: reddish to yellowish brown; firm; stiff; moderately plastic; moist.		CL		
22									
23									
24									
25									
26									
27									
28					Auger refusal at 29'				
29					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
30									
31									
32									
33									
34									
35	29-39		> 90%		Continuous core from 29 to 39'				
36									
37									
38									
39									
40					Air rotary drilling from 39' to 80' with 4 & 7/8" tri-cone bit				
Notes:									



16252 Westwoods Business Park Drive
 Ellisville, Missouri 63021
 636-256-7200/ Fax: 636-256-7202
www.perma-fix/sya.com

LOG OF TEST BORING

Client:		Project No: 070113		Boring / Well No. OLGW-9D	
Project: Heartland Cement Company				Page No. 3 of 4	
Location: Independence, Kansas				Start Date: 3/3/2009	
Surface Elevation:		Top of Casing Elevation:		Completion Date: 3/5/2009	
Drilling Contractor: Pratt Environmental Well Services				Sample Method:	
Drill Rig: Stardrill 300					
Water Encountered ? :		Total Boring Depth: 80'		Hole Diameter:	
Initial Water Level:		Surface Casing Depth: 40'		Inspector (s):	
Static Water Level:		Well Depth: 80'		Company: Schreiber, Yonley & Associates	

Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
41					SHALE (Cherryvale Formation): gray, planar, thinly bedded to massive.				
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57					LIMESTONE (Cherryvale Formation): light gray, occasional shale partings				
58									
59									
60									

Notes:



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 Ellisville, Missouri 63021
 636-256-7200/ Fax: 636-256-7202
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LOG OF TEST BORING

Client:		Project No:		070113		Boring / Well No.		OLGW-9D	
Project: Heartland Cement Company						Page No. 4 of 4			
Location: Independence, Kansas						Start Date: 3/3/2009			
Surface Elevation:			Top of Casing Elevation:			Completion Date: 3/5/2009			
Drilling Contractor: Pratt Environmental Well Services						Sample Method:			
Drill Rig: Stardrill 300									
Water Encountered ? :						Total Boring Depth: 80'		Hole Diameter:	
Initial Water Level:						Surface Casing Depth: 40'		Inspector (s):	
Static Water Level:						Well Depth: 80'		Company: Schreiber, Yonley & Associates	
Depth BGS (ft.)	Sample Interval	N	Rec. % RQD	PID Units	Description of Materials/Remarks	Moisture	Soil Class	Graphic Log	Well Diag.
61					LIMESTONE (Cherryvale Formation): light gray, occasional shale partings				
62					SHALE (Cherryvale Formation): gray, tight.				
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
78									
79									
80					Total Depth at 80 feet.				
Notes:									

Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼		Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W				
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS				Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m						
2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301										
3 LOCATE WELL WITH AN "X" IN SECTION BOX: N <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 10px;">W</div> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;">NW</td> <td style="padding: 5px;">NE</td> </tr> <tr> <td style="padding: 5px;">SW</td> <td style="padding: 5px;">SE</td> </tr> </table> <div style="text-align: center; margin-left: 10px;">E</div> </div> S <div style="display: flex; align-items: center; justify-content: center;"> <div style="width: 100px; border-bottom: 1px solid black; margin-right: 5px;"></div> <div>1 mile</div> </div>		NW	NE	SW	SE	4 DEPTH OF COMPLETED WELL 80 ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL 5.47 ft. below land surface measured on mo/day/yr. 3/5/09..... Pump test data: Well water was..... ft. after..... hours pumping..... gpm EST. YIELD..... gpm. Well water was..... ft. after..... hours pumping..... gpm Bore Hole Diameter 10.5/8 in. to 31.5 ft., and 4.7/8 in. to 80 ft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted..... Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
NW	NE									
SW	SE									
5 TYPE OF CASING USED: <input checked="" type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter .7..... in. to 31.5 ft., Diameter .55..... in. to 50 ft., Diameter .2..... in. to .65 ft. Casing height above land surface...3'..... in., Weightlbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From...80..... ft. to .65..... ft., From ft. to ft. From..... ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From...80..... ft. to 50..... ft., From ft. to ft. From..... ft. to ft., From ft. to ft.										
6 GROUT MATERIAL: <input checked="" type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From .50..... ft. to .1..... ft., From .1..... ft. to 0 ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well <i>Creek Bottom</i> Direction from well Distance from well										
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS					
0'	18'	Silty Clay: r to y brn; firm; stiff	0	31.5	Cement (7") Steel					
		moderately plastic; moist	0	50	Cement (5.5") Steel					
18'	46'	Shale: gray, planar, thinly bedded	0	50	Bentonite Seal (2") PVC					
46'	51'	Limestone: light gry, oc. shale par								
51'	80'	Shale: gray, tight								
		OLGW-7D								
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 3/5/09..... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665..... This Water Well Record was completed on (mo/day/year) 4/7/09..... under the business name of Pratt Well Service, Inc. by (signature) <i>Pratt Well Service</i>										
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of \$5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html .										

WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼	Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS			Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m		
2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301					
3 LOCATE WELL WITH AN "X" IN SECTION BOX: N W E S -----1 mile-----		4 DEPTH OF COMPLETED WELL 22 ft. Depth(s) Groundwater Encountered (1) ft. (2) ft. (3) ft. WELL'S STATIC WATER LEVEL 8.51 ft. below land surface measured on mo/day/yr. 2/27/09 Pump test data: Well water was ft. after hours pumping gpm EST. YIELD gpm. Well water was ft. after hours pumping gpm Bore Hole Diameter 8 1/2 in. to 22 ft., and in. to ft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5 TYPE OF CASING USED: <input type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter 2 in. to 10 ft., Diameter in. to ft., Diameter in. to ft. Casing height above land surface 3 ft in., Weight SCH 40 lbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From 22 ft. to 7 ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From 22 ft. to 5 ft., From ft. to ft. From ft. to ft., From ft. to ft.					
6 GROUT MATERIAL: <input type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From 5 ft. to 1 ft., From ft. to ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well N/A Direction from well N/A Distance from well N/A					
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0'	3'	Gravel: Coarse, road pad fill			
3'	8'	Silty Clay: r to y brn; firm; stiff			
		moderately plastic; moist			
	8'	Wet			
8'	22'	Continued Silty Clay to TD of 22'			
		OLGW-8			
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/24/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 865 This Water Well Record was completed on (mo/day/year) 4/7/09 under the business name of Pratt Well Service, Inc. by (signature) <i>Pratt Well Service, Inc.</i>					
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of \$5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html .					

WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼	Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W				
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS		Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m							
2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301									
3 LOCATE WELL WITH AN "X" IN SECTION BOX: N <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;">W</div> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 5px;">-- NW --</td> <td style="padding: 5px;">-- NE --</td> </tr> <tr> <td style="padding: 5px;">-- SW --</td> <td style="padding: 5px;">-- SE --</td> </tr> </table> <div style="margin-left: 10px;">E</div> </div> <div style="text-align: center; margin-top: 5px;">S -----1 mile----- </div>		-- NW --	-- NE --	-- SW --	-- SE --	4 DEPTH OF COMPLETED WELL 22..... ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL 8.29..... ft. below land surface measured on mo/day/yr. 2/27/09..... Pump test data: Well water was..... ft. after..... hours pumping..... gpm EST. YIELD..... gpm. Well water was..... ft. after..... hours pumping..... gpm Bore Hole Diameter 8 1/2..... in. to .22..... ft., and in. to ft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted..... Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
-- NW --	-- NE --								
-- SW --	-- SE --								
5 TYPE OF CASING USED: <input type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter .2..... in. to .10..... ft., Diameter in. to ft., Diameter in. to ft. Casing height above land surface 3 ft..... in., Weight SCH 40..... lbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From 22..... ft. to 7..... ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From 22..... ft. to 5..... ft., From ft. to ft. From ft. to ft., From ft. to ft.									
6 GROUT MATERIAL: <input type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From 5..... ft. to 1..... ft., From ft. to ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well N/A Direction from well N/A..... Distance from well N/A.....									
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS				
0'	3'	Gravel: Coarse, road pad fill							
3'	8'	Silty Clay: r to y brn; firm; stiff							
		moderately plastic; moist							
	13'	Wet							
8'	22'	Continued Silty Clay to TD of 22'							
		OLGW-9							
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/24/09..... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665..... This Water Well Record was completed on (mo/day/year) 4/7/09..... under the business name of Pratt Well Service, Inc..... by (signature) <i>[Signature]</i>									
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WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼		Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W																
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS				Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m																		
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		X																				
	SW	SE																				
5 TYPE OF CASING USED: <input checked="" type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter 7 in. to 29 ft., Diameter 5 1/2 in. to 40 ft., Diameter 2 in. to 65 ft. Casing height above land surface 3 in., Weight SCH 40 lbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From 80 ft. to 65 ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From 80 ft. to 50 ft., From ft. to ft. From ft. to ft., From ft. to ft.																						
6 GROUT MATERIAL: <input checked="" type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From (7")-0 ft. to (7")-29 ft., From (5.5")-0 ft. to (5.5")-40 ft., From (2")-65 ft. to (2")-1' ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well <input type="checkbox"/> Creek Bottom Direction from well Distance from well																						
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS																	
0'	29'	Silty Clay: r to y brn; firm; stiff	0	29'	Cement (7") Steel																	
		moderately plastic; moist	0	40'	Cement (5.5") Steel																	
29'	57'	Shale: gray, planar, thinly bedded	0	65'	Bentonite (2") PVC																	
57'	62'	Limestone: light gry, oc. shale par																				
62'	80'	Shale: gray, tight																				
		OLGW-9D																				
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 3/5/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 865 This Water Well Record was completed on (mo/day/year) 4/7/09 under the business name of Pratt Well Service, Inc. by (signature) <i>[Signature]</i>																						
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of \$5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html .																						

WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼	Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W									
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS			Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m											
2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301														
3 LOCATE WELL WITH AN "X" IN SECTION BOX: N <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr><td></td><td></td><td></td></tr> <tr><td>NW</td><td></td><td>NE</td></tr> <tr><td>SW</td><td></td><td>SE</td></tr> </table> </div> <p style="text-align: center;">S -----1 mile-----</p>					NW		NE	SW		SE	4 DEPTH OF COMPLETED WELL 19.5 ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL 8.29 ft. below land surface measured on mo/day/yr. 2/27/09..... Pump test data: Well water was.....ft. after..... hours pumping..... gpm EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm Bore Hole Diameter 8.1/2 in. to 19.5 ft., andin. toft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted..... Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
NW		NE												
SW		SE												
5 TYPE OF CASING USED: <input type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter .2 in. to 7.5 ft., Diameter in. to ft., Diameter in. to ft. Casing height above land surface 3 ft. in., Weight SCH.40 lbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From 19.5 ft. to 4.5 ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From 19.5 ft. to 2.5 ft., From ft. to ft. From ft. to ft., From ft. to ft.														
6 GROUT MATERIAL: <input type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From 2.5 ft. to .5 ft., From ft. to ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well Direction from well N/A Distance from well N/A														
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS									
0'	3.5'	Gravel: Coarse, road pad fill												
3.5'	18'	Silty Clay: r to y brn; firm; stiff												
		moderately plastic; moist												
	14'	Wet												
18'	19.5'	Auger refusal at 19.5'												
		OLGW-10												
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/24/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665 This Water Well Record was completed on (mo/day/year) 4/7/09 under the business name of Pratt Well Service, Inc. by (signature) <i>Pratt Well Service, Inc.</i>														
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of \$5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html .														

WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼		Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W				
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS				Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m						
2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301										
3 LOCATE WELL WITH AN "X" IN SECTION BOX: N <div style="text-align: center;"> <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">NW</td> <td style="padding: 5px;">NE</td> </tr> <tr> <td style="padding: 5px;">SW</td> <td style="padding: 5px; text-align: center;">X SE</td> </tr> </table> </div> <p style="text-align: center;">S -----1 mile----- </p>		NW	NE	SW	X SE	4 DEPTH OF COMPLETED WELL 38 ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL 29.68 ft. below land surface measured on mo/day/yr. 2/27/09..... Pump test data: Well water was.....ft. after..... hours pumping..... gpm EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm Bore Hole Diameter 8.1/2.....in. to .38.....ft., andin. toft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted..... Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
NW	NE									
SW	X SE									
5 TYPE OF CASING USED: <input type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter .2..... in. to .26..... ft., Diameter in. to ft., Diameter in. to ft. Casing height above land surface .3 ft..... in., Weight SCH. 40..... lbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From .38..... ft. to .23..... ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From .38..... ft. to .21..... ft., From ft. to ft. From ft. to ft., From ft. to ft.										
6 GROUT MATERIAL: <input type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From .21..... ft. to .1..... ft., From ft. to ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well N/A Direction from well N/A..... Distance from well N/A.....										
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS					
0'	21'	Silty Clay: r to y brn; firm; stiff moderately plastic; moist								
21'	38'	Silty Clay: r to y brn; firm; stiff moderately plastic; moist								
	38'	Auger refusal at 38'								
		OLGW-11								
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/24/09..... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665..... This Water Well Record was completed on (mo/day/year) 4/7/09..... under the business name of Pratt Well Service, Inc..... by (signature) <i>[Signature]</i>										
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of \$5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html .										

WATER WELL RECORD

Form WWC-5

Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Montgomery		Fraction SW ¼ NE ¼ SE ¼ ¼	Section Number 32	Township No. T 32 S	Range Number R 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W
Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here <input type="checkbox"/> One mile east of Independence, KS			Global Positioning System (GPS) information: Latitude: (in decimal degrees) Longitude: (in decimal degrees) Elevation: Datum: <input type="checkbox"/> WGS 84, <input type="checkbox"/> NAD 83, <input type="checkbox"/> NAD 27 Collection Method: <input type="checkbox"/> GPS unit (Make/Model:) <input type="checkbox"/> Digital Map/Photo, <input type="checkbox"/> Topographic Map, <input type="checkbox"/> Land Survey Est. Accuracy: <input type="checkbox"/> <3 m, <input type="checkbox"/> 3-5 m, <input type="checkbox"/> 5-15 m, <input type="checkbox"/> >15 m		
2 WATER WELL OWNER: Heartland Cement Company RR#, Street Address, Box #: 1765 Limestone Rd. City, State, ZIP Code : Independence, KS 67301					
3 LOCATE WELL WITH AN "X" IN SECTION BOX: N W E -- NW -- -- NE -- -- SW -- -- SE -- S -----1 mile-----		4 DEPTH OF COMPLETED WELL 20 ft. Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft. WELL'S STATIC WATER LEVEL 7.90 ft. below land surface measured on mo/day/yr. 2/27/09..... Pump test data: Well water was.....ft. after..... hours pumping..... gpm EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm Bore Hole Diameter 8 1/2.....in. to 20.....ft., andin. toft. WELL WATER TO BE USED AS: <input type="checkbox"/> Public water supply <input type="checkbox"/> Geothermal <input type="checkbox"/> Injection well <input type="checkbox"/> Domestic <input type="checkbox"/> Feedlot <input type="checkbox"/> Oil field water supply <input type="checkbox"/> Dewatering <input type="checkbox"/> Other (Specify below) <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Domestic-lawn & garden <input checked="" type="checkbox"/> Monitoring well Was a chemical/bacteriological sample submitted to Department? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, mo/day/yr sample was submitted..... Water well disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5 TYPE OF CASING USED: <input type="checkbox"/> Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other CASING JOINTS: <input type="checkbox"/> Glued <input type="checkbox"/> Clamped <input type="checkbox"/> Welded <input checked="" type="checkbox"/> Threaded Casing diameter 2..... in. to 8..... ft., Diameter in. to ft., Diameter in. to ft. Casing height above land surface 3 ft. in., Weight SCH 40..... lbs./ft., Wall thickness or gauge No. TYPE OF SCREEN OR PERFORATION MATERIAL: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Brass <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> None used (open hole) SCREEN OR PERFORATION OPENINGS ARE: <input type="checkbox"/> Continuous slot <input checked="" type="checkbox"/> Mill slot <input type="checkbox"/> Gauze wrapped <input type="checkbox"/> Torch cut <input type="checkbox"/> Drilled holes <input type="checkbox"/> None (open hole) <input type="checkbox"/> Louvered shutter <input type="checkbox"/> Key punched <input type="checkbox"/> Wire wrapped <input type="checkbox"/> Saw cut <input type="checkbox"/> Other (specify) SCREEN-PERFORATED INTERVALS: From 20..... ft. to 5..... ft., From ft. to ft. From ft. to ft., From ft. to ft. GRAVEL PACK INTERVALS: From 20..... ft. to 3..... ft., From ft. to ft. From ft. to ft., From ft. to ft.					
6 GROUT MATERIAL: <input type="checkbox"/> Neat cement <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Other Grout Intervals: From 3..... ft. to 5..... ft., From ft. to ft., From ft. to ft. What is the nearest source of possible contamination: <input type="checkbox"/> Septic tank <input type="checkbox"/> Lateral lines <input type="checkbox"/> Pit privy <input type="checkbox"/> Livestock pens <input type="checkbox"/> Insecticide storage <input checked="" type="checkbox"/> Other (specify below) <input type="checkbox"/> Sewer lines <input type="checkbox"/> Cesspool <input type="checkbox"/> Sewage lagoon <input type="checkbox"/> Fuel storage <input type="checkbox"/> Abandoned water well <input type="checkbox"/> Watertight sewer lines <input type="checkbox"/> Seepage pit <input type="checkbox"/> Feedyard <input type="checkbox"/> Fertilizer storage <input type="checkbox"/> Oil well/gas well N/A Direction from well N/A Distance from well N/A					
FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0'	20'	Silty Clay; r to y brn; firm; stiff			
		moderately plastic; moist			
	20'	Auger refusal at 20'			
		OLGW-12			
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was <input checked="" type="checkbox"/> constructed, <input type="checkbox"/> reconstructed, or <input type="checkbox"/> plugged under my jurisdiction and was completed on (mo/day/year) 2/24/09..... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 665..... This Water Well Record was completed on (mo/day/year) 4/7/09..... under the business name of Pratt Well Service, Inc. by (signature) <i>[Signature]</i>					
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of \$5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html .					

WELL NLGW-1

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: NEW KILN DUST LANDFILL
 DATE STARTED: 1/22/93
 DATE COMPLETED: 1/22/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 751.96 FT.
 WATER LEVEL: 6.30 FT.
 WEATHER: SUNNY, 45° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	RECOVERY %	HNU (ppm)	SOIL DESCRIPTION	VISUAL CONTAM.					ODOR	LITHOLOGY	DEPTH	WELL CONSTRUCTION
				color, density, SOIL, admixtures, moisture, other notes, ORIGIN	NONE	STAIN	SHEEN	HEAVY	NONE	SLIGHT	MODERATE	STRONG	
0-5	augered	50	0	Dark brown loose silty CLAY, trace sand and organics, moist grading to light to dark brown, compact									
5-10	augered	30	0	Light brown to orange-brown compact CLAY, trace fine sand, dry									
10-15	augered	20	0	orange to light brown, trace silt									
15-20	augered	25	0	grading to orange-brown compact silty CLAY and fine SAND saturated at 16± ft.									
20-25	augered	25	0	light brown to orange, saturated									
				grading to weathered bedrock (limestone)									
				Total Depth 25± ft.									
				Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									

ATLANTIC

WELL NLGW-2

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: NEW KILN DUST LANDFILL
 DATE STARTED: 1/21/93
 DATE COMPLETED: 1/21/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 759.25 FT.
 WATER LEVEL: 16.49 FT.
 WEATHER: OVERCAST, 30° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLDWS PER 6"	RECOVERY %	H ₂ O (ppm)	SOIL DESCRIPTION color, density, SOIL, admixtures, moisture, other notes, ORIGIN	VISUAL CONTAM.			ODOR			LITHOLOGY	DEPTH	WELL CONSTRUCTION
					NONE	STAIN	SHEEN	HEAVY	NONE	SLIGHT	MODERATE	STRONG	
0-5	augered	0	0	Augered through turf, medium sand and gravel, cobbles, and fractured boulders just below surface									
5-10	augered	60	0	Light brown fine SAND and SILT, wet Black silty CLAY, trace organics slightly moist									
10-15	augered	100	0	Dark brown CLAY, trace gravel									
15-20	augered	100	0	Brown to dark brown CLAY with silt, trace sand, slightly moist									
20-25	augered	100	0	grading to brown, increasing sand content									
25-30	augered	100	0	wet at 31.5± ft.									
30-35	augered	90	0	fractured stone/weathered bedrock (limestone) 34.5-35± ft. Bedrock (limestone) at 35± ft. Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									

ATLANTIC

WELL NLGW-3

PROJECT: HEARTLAND CEMENT, INDEPENDENCE, KS
 PROJECT NO: 1302-02-04
 LOCATION: NEW KILN DUST LANDFILL
 DATE STARTED: 1/22/93
 DATE COMPLETED: 1/22/93
 DRILLING CONTRACTOR: LAYNE-WESTERN
 DRILLER: RANDY CROWLEY

DRILLING METHOD: 4.25 in. I.D. HSA
 SAMPLING METHOD: 5 FT. CME SAMPLER
 GROUND ELEVATION: 757.05 FT.
 WATER LEVEL: 15.52 FT.
 WEATHER: SUNNY, 38° F
 INSPECTOR: MIKE LIBERTINE
 CHECKED BY: DAVE HALVERSON

SPLIT SPOON SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION color, density, SOIL, admixtures, moisture, other notes, DRIGIN	VISUAL CONTAM.						ODOR NONE SLIGHT MODERATE STRONG	LITHOLOGY	DEPTH	WELL CONSTRUCTION
					NONE	STAIN	SHEEN	HEAVY	NONE	SLIGHT	MODERATE	STRONG		
0-5	augered	0	0	Augered through turf, clayey silt, gravel, cobbles, and organics grading to grayish-black silty CLAY, trace sand and gravel									0	
5-10	augered	100	0	grading to black									5	
10-15	augered	50	0										10	
15-20	augered	100	0	grading to dark brown, increasingly moist beginning at 16 ft. water at 18+ ft.									15	
20-25	augered	100	0	Brown compact silty CLAY and fine SAND, gravel, moist to wet throughout spoon									20	
				Augered to 27+ ft.									25	
				Note: Bentonite seal was allowed to setup for 8 hours (minimum) prior to grouting remainder of annulus.									30	
													35	

ATLANTIC

APPENDIX B

MONITORING WELL SAMPLING & INSPECTION LOG

Groundwater Sampling & Inspection Log

Heartland Cement Company dba Buzzi Unicem USA
Independence, Kansas

Well ID _____ Date _____

Well Depth _____ Water Level _____ Well Diameter _____ Well Volume _____

Person(s) Sampling _____ Sampling Method _____

Weather Conditions _____

Well Conditions							
	Well Marked	Lock In Place	Casing Damage	Ponded Water Present	Well Erosion or Subsidence		

Date	Time	Method	Pump Rate Gal/min	Volume Gal	Water Level Ft	ORP mV	Turbidity NTU	Conductivity umhos	Temperature °C	pH

Samples Taken							
Parameters Collected		Number of Bottles		Bottle ID			

Notes	
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APPENDIX C

FIELD PROCEDURES FOR COLLECTING GROUNDWATER SAMPLES

FIELD PROCEDURES FOR COLLECTING GROUNDWATER SAMPLES

1.0 PROCEDURE

The following procedure describes the logistics, chain of events, collection technique, and documentation requirements for collecting groundwater samples designated for chemical analysis.

1.1 Selection of Sampling Locations

Groundwater samples will be obtained from the identified groundwater wells proposed to be sampled during the groundwater monitoring activities, as specified in the Groundwater Monitoring Plan for SWMU 11.

1.2 Equipment List

The following items are to be considered a minimum listing of required field equipment for collecting groundwater samples.

- water level indicator;
- water quality meters with calibration standards (pH meter, temperature gauge, specific conductivity meter, and turbidity meter);
- submersible pump (associated equipment) or disposable bailers;
- a field notebook and indelible pen;
- sample bottle labels;
- chain-of-custody forms; and
- sample containers.

1.3 Water Level Measurement

Prior to the extraction of any groundwater, the depth-to-water shall be measured to the nearest 0.01 foot using an electronic water level indicator. Water level measurements from the group of wells at the facility will be collected within a 24-hour period.

- A reference point will be made at the top of the well casing using a waterproof marker to use as a reference point for all present and future water level measurements.
- The casing cap will then be removed and the well I.D. number, time of day, elevation (top of casing), and the date should be noted on the groundwater sampling & inspection form.
- The water level indicator will then be turned on and lowered into the well until a beep is heard.
- The distance from the water surface to the reference point of the well casing will be measured and recorded on the groundwater sampling & inspection form.
- The total depth of the well will be measured (at least twice to confirm measurement) and recorded on the groundwater sampling & inspection form.
- The water level indicator will be removed from the well and rinsed with Alconox® and distilled water.

1.4 Field Equipment Calibration

Field testing equipment will be calibrated per manufacturer instructions prior to beginning its use on each day.

1.5 Well Purging

The well(s) will be purged utilizing a dedicated disposable bailer or a low-flow submersible pump. Purging activities will follow the procedures established in EPA guidance Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers (EPA 542-S-02-001/May 2002) and may utilize either the “Low-Stress Approach” or the “Well-Volume Approach” as described in the guidance.

If only a dedicated disposable bailer is utilized to develop the wells, decontamination procedures are not required. If a submersible pump is used to purge or develop the wells, the pump will be decontaminated prior to and after use at each well. These procedures will consist of scrubbing with Alconox® detergent, then rinsing in tap water, followed by a deionized-water rinse.

Field parameters will be obtained for each volume of water removed during purging and development activities and will consist of temperature, specific conductivity, turbidity, ORP, and pH. The field parameters will be recorded on the groundwater sampling and inspection log form.

1.6 Sampling Procedures

Groundwater samples will be collected upon completion of appropriate purge criteria following procedures established in EPA guidance Groundwater Sampling Guidelines for Superfund and RCRA Project Managers (EPA 542-S-02-001/May 2002).

Purging activities will be consistent with development procedures provided in Section 1.5. Field parameters will be obtained for each volume of water removed during purging activities and will consist of temperature, specific conductivity, pH, ORP, and turbidity. The field parameters will be recorded on the ground water sampling and inspection log form,

- Prior to collecting any water samples, a waterproof sample label will be placed on each container and will specify the following:
 - sample number
 - date
 - time
 - preservative
 - project number
 - collector's initials
- A waterproof ink pen will be used to record the data.
- Jars will then be filled directly from the pump or bailer. Overflowing containers with preservatives will be avoided.
- Place all samples into a sample shipping container; cool with ice and fill out the chain-of-custody form.
- A groundwater sampling & inspection form will be filled out and will include, at a minimum, the following data:
 - sample identification number;
 - location of the sample;
 - time and date of sampling;
 - personnel performing task;
 - depth to water table, reference mark and casing(s) stick-up;
 - amount evacuated from well and device used for evacuation;
 - visual or sensory description of the sample;
 - weather conditions both present and previous to sampling; and
 - other pertinent observations.
- Samples will be packed for shipping in rigid, insulated (if preserved at 4°C) shipping containers, and immobilized and cushioned in the packing container to prevent breakage.

1.7 QA/QC Samples

QA/QC samples will be collected in accordance with the QAPP. Rinsate blanks will be created by running distilled/deionized water over decontamination sampling equipment to test for residual decontamination. The water blank will be collected in sample containers for handling, shipping, and analysis. The rinsate blanks will be treated identical to the samples collected that day.

Trip blanks are not required since no VOCs are being analyzed.

Field duplicates are field samples taken from one location and divided into separate containers. They will be treated as separate, independent samples through the remaining sampling and analysis chain.

Matrix spike/matrix spike duplicates are field samples that are spiked in the laboratory with a known concentration of target analytes to verify percent recoveries. Sufficient samples will be collected in the field to provide for the matrix spike and matrix spike duplicate samples.

Groundwater Sampling & Inspection Log

Heartland Cement Company dba Buzzi Unicem USA
Independence, Kansas

Well ID _____ Date _____

Well Depth _____ Water Level _____ Well Diameter _____ Well Volume _____

Person(s) Sampling _____ Sampling Method _____

Weather Conditions _____

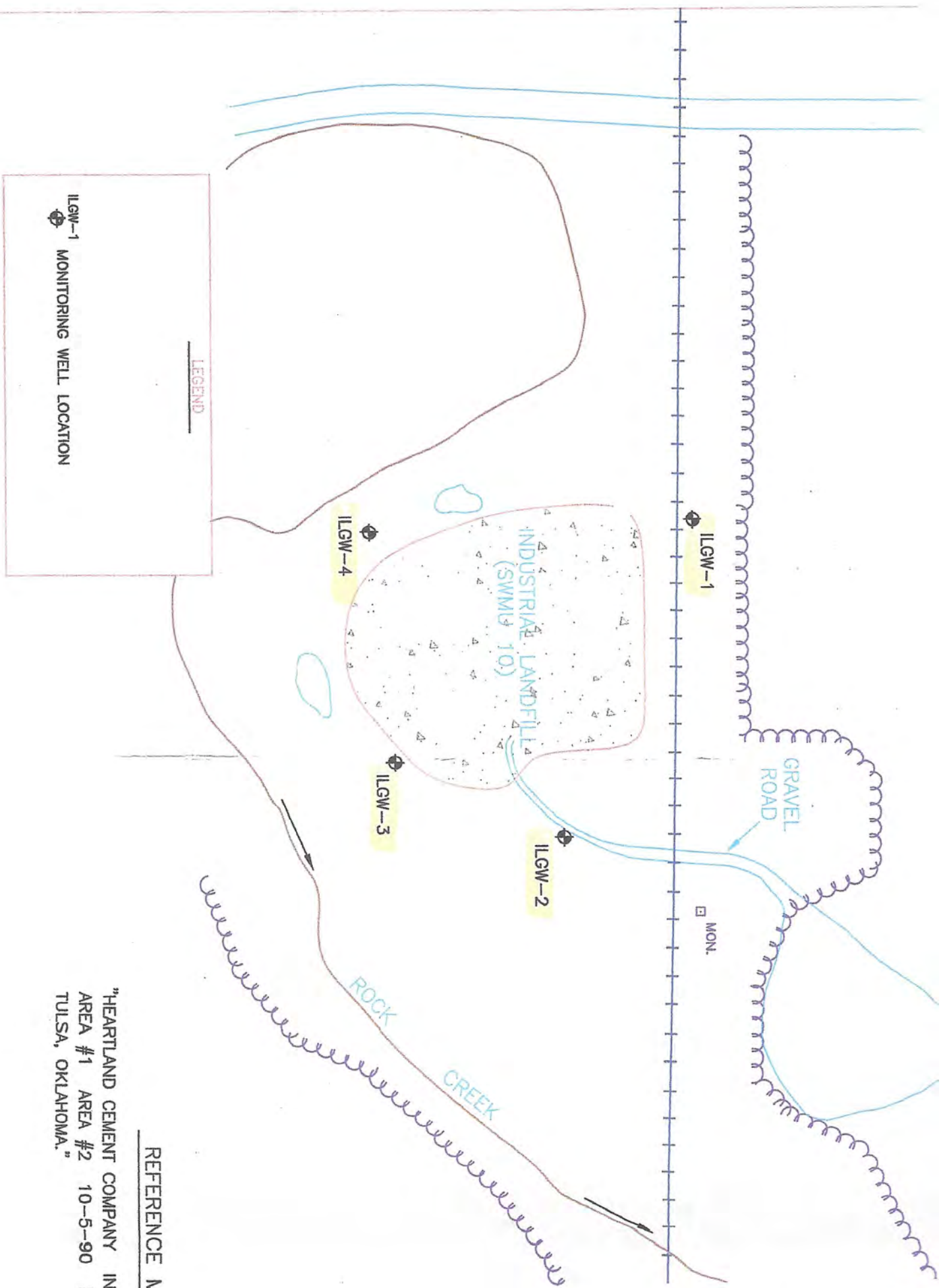
Well Conditions							
	Well Marked	Lock In Place	Casing Damage	Ponded Water Present	Well Erosion or Subsidence		

Date	Time	Method	Pump Rate Gal/min	Volume Gal	Water Level Ft	ORP mV	Turbidity NTU	Conductivity umhos	Temperature °C	pH

Samples Taken							
Parameters Collected		Number of Bottles		Bottle ID			

Notes	
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ATTACHMENT B-3
INDUSTRIAL LANDFILL WELL MAP



APPENDIX C
SITE VISIT PHOTOLOG

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



RCRA Enforcement and Permitting Assistance (REPA) Zone 3, Task Order 035, Technical Directive (TD) #9	DESCRIPTION	This photograph shows the main entrance into Buzzi Unicem USA, facing southeast.	1
	CLIENT	U.S. Environmental Protection Agency (EPA)	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the New Cement Kiln Dust (CKD) Landfill, facing east.	2
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the New CKD Landfill, facing north.	3
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the New CKD Landfill, facing northwest.	4
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the New CKD Landfill, facing west.	5
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows an example of the vegetative cover on the New CKD Landfill.	6
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the Old CKD Landfill, facing east.	7
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the south side of the Old CKD Landfill, facing north	8
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the west side of the Old CKD Landfill, facing northeast.	9
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the east side of the Old CKD Landfill, facing northeast.	10
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the south side of the Old CKD Landfill, facing west.	11
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows an example of vegetative cover on the Old CKD Landfill.	12
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the entrance to the Industrial Landfill, facing southwest.	13
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the southeast side of the Industrial Landfill, facing north.	14
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the south side of the Industrial Landfill, facing south.	15
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the north side of the Industrial Landfill, facing north.	16
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows the northwest side of the Industrial Landfill, facing northwest.	17
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows a small area of erosion on the Industrial Landfill cap, facing east.	18
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows an example of the vegetative cover on the Industrial Landfill.	19
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well NLGW-1 near the New CKD Landfill.	20
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well NLGW-2 near the New CKD Landfill.	21
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well NLGW-3 near the New CKD Landfill.	22
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well NLGW-4 near the New CKD Landfill.	23
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-1 near the Old CKD Landfill.	24
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-1D near the Old CKD Landfill.	25
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-3 near the Old CKD Landfill.	26
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-4 near the Old CKD Landfill. Soil around the well is eroding into the creek below.	27
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows a closeup of monitoring well OLGW-4 near the Old CKD Landfill. Soil around the well is eroding into the creek below.	28
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-5 near the Old CKD Landfill.	29
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-6 near the Old CKD Landfill. It appears the well stickup has been knocked over.	30
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-7 near the Old CKD Landfill.	31
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-7D near the Old CKD Landfill.	32
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-8 near the Old CKD Landfill. The well includes a PVC cover as this area is prone to flooding.	33
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-9 near the Old CKD Landfill. The well includes a PVC cover as this area is prone to flooding.	34
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-9D near the Old CKD Landfill. The well includes a PVC cover as this area is prone to flooding.	35
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-10 near the Old CKD Landfill. The well includes a PVC cover as this area is prone to flooding.	36
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-11 near the Old CKD Landfill.	37
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well OLGW-12 near the Old CKD Landfill.	38
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well ILGW-1 near the Industrial Landfill.	39
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well ILGW-2 near the Industrial Landfill.	40
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well ILGW-3 near the Industrial Landfill.	41
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows a closeup of monitoring well ILGW-3 near the Industrial Landfill. The concrete pad appears to be damaged.	42
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	

BUZZI UNICEM USA
INDEPENDENCE, MONTGOMERY COUNTY, KANSAS



REPA Zone 3 Task Order 035, TD #9	DESCRIPTION	This photograph shows monitoring well ILGW-4 near the Industrial Landfill.	43
	CLIENT	U.S. EPA	DATE 10/2/2018
	PHOTOGRAPHER	Danielle Gibson	